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FRIAS NEWS

ALBERT-LUDWIGS-UNIVERSITÄT FREIBURG • FREIBURG INSTITUTE FOR ADVANCED STUDIES



FORMING NEW PARTNERSHIPS

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Cover picture: 24th Hermann Staudinger Lecture "From Chemical Topology to Molecular Machines" with Nobel laureate Jean-Pierre Sauvage on January 9th, 2018



It was Thursday, the 16th November 2017, in the late morning. All fellows, the rector and pro-rector of the University of Freiburg, the FRIAS directors and the FRIAS administration staff were waiting in the FRIAS lounge for a guest. The expected guest, being stuck in traffic, was Theresia Bauer, Minister of Science, Research and the Arts of Baden-Württemberg, who has vitally supported FRIAS in the last years. Though behind her tight schedule, she took the time for a lively conversation with our fellows about their scientific projects. In the following discussion with the FRIAS directors and the University administration she listened intently and patiently to all our impressive plans for the future. But when it came to her questions I understood why Theresia Bauer was elected best German Minister of Science three times by German university members. She was wondering how we find the leisure and free time that is so crucially needed for creativity. And this is exactly what FRIAS can give you: time to think, stress-free conversations with colleagues, and professional administrative support. This is also the reason why I did not think twice when I was asked to join the FRIAS board of directors as the director for Natural and Life Sciences, Medicine, Engineering last year.

I am a biologist, working in the field of bacterial genetics. Before I came to Freiburg in 2008, I was a Professor for Microbiology at the Justus-Liebig University Giessen. Female Professors are still a rare phenomenon at German universities, although large gains have been made in closing the gender gap in science. Growing up in East Berlin, I never once felt that gender had played a role in my education. I was always encouraged to believe that I could achieve the same, or even more, than my male school, student or PhD fellows. However, in my function as deputy equal opportunity officer of the University of Freiburg and as a member of many search committees for new professorships I know that women in science still face persistent career challenges. Therefore, I feel the need to contribute to the recruitment of talented women within the frame of the many different programmes at FRIAS.

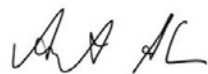
Another challenge in the academic year 2017/2018 was (and still is) the Excellence Strategy of the German government. Two research teams of the University of Freiburg were invited to submit full proposals for clusters grounded in the fields of biological signalling and material science. The suc-

cess of the University in this Excellence Competition will also have a pivotal effect on our work at FRIAS. Among other we decided to develop joint programme formats to increase our attractiveness to international researchers in the fields of the proposed cluster initiatives. As one of the current deputy deans at the Faculty of Biology, I will support close contacts between the FRIAS board of directors and the speakers of the clusters.

It will be also a challenge to attract more experimental scientists to FRIAS programmes. For example, we are starting a new series of the Natural Sciences Colloquium in 2018. Our fellows working on biological, chemical and physical problems and in the area of engineering will discuss general challenges of their respective fields with a highly interdisciplinary audience. I am personally looking forward to participate in these colloquia, and I expect exciting and inspiring conversations.

In the current 15th issue of FRIAS News you will also find information on the “Maria Sibylla Merian International Centre for Advanced Studies in the Humanities and Social Sciences” programme. In the context of this highly competitive federal grant, FRIAS and the University of Freiburg will lead a consortium of partners in establishing an Institute for Advanced Studies at the University of Ghana with a secondary site in Dakar, Senegal.

I hope you will enjoy reading this issue of FRIAS News, and wish you a very successful New Year!



Annegret Wilde  
Director Natural and Life Sciences, Medicine, Engineering

*Translations of all articles can be found online at [www.frias.uni-freiburg.de/frias-news](http://www.frias.uni-freiburg.de/frias-news)*

## LIVELY DISCUSSIONS WITH THERESIA BAUER



Theresia Bauer (MdL), Minister of Science, Research and the Arts of Baden-Württemberg, visited FRIAS on November 16th, 2017. Through discussions with our fellows, Bauer gained insights into current activities and the fascinating range of projects conducted at FRIAS. An in-depth meeting with the FRIAS directors provided the opportunity to address the long-term development plans of the institute and to once again express appreciation for the vital and continuing support FRIAS receives from her ministry.



# FRIAS FORSCHUNGS- SCHWERPUNKT SYNCHRONIZATION IN EMBODIED INTERACTION

**Carl Eduard Scheidt,  
Hermann Herlinghaus,  
Claas Lahmann,  
Stefan Pfänder**



*Ein Paar sitzt nebeneinander auf dem Sofa und spricht über Familienplanung, drei Kinder haben die beiden schon, nun erzählen sie von ihrer Entscheidung für oder gegen ein viertes. Abwechselnd reden sie von ihren Überlegungen, von den Erinnerungen daran, dass es mit dem dritten Baby schon recht anstrengend war. Mal schauen sie sich an, mal sind sie in ihre Gedanken versunken. Dann wirft die Frau einen kurzen Seitenblick auf ihren Mann, „wir haben eigentlich beide gesagt...“, sagt sie und macht eine kurze Pause. In diesem Moment schüttelt der Mann den Kopf, sagt leise „nee“, fast im selben Moment sagt auch die Frau „nee“, begleitet von leichtem Kopfschütteln.*

Gesprächspartner reagieren inhaltlich aufeinander, sie passen sich aber auch sprachlich und körperlich einander an, so wie das Paar, das von seiner gemeinsamen Entscheidung erzählt – etwa in Stimmlage, Melodie und Betonungen, in Blicken, Körperhaltung, Gesten und Mimik. Wie diese multimodale Synchronisation im gegenseitigen Austausch genau funktioniert und welche Bedeutung sie für ein gegenseitiges Verständnis im weiten Sinn besitzt, ist Thema des interdisziplinären FRIAS Forschungsschwerpunkts *Synchronization in Embodied Interaction*. Die Gruppe vereint hierzu Wissenschaftlerinnen und Wissenschaftler aus den Disziplinen Linguistik, Kulturanthropologie, Psychotherapie und Körperpsychotherapie.

„Unser Ziel ist die innovative Annäherung an die Frage: Wie funktioniert Kommunikation zwischen unterschiedlichen Gesprächspartnern?“, sagt der Kulturwissenschaftler Hermann Herlinghaus, Professor am Romanischen Seminar der Universität Freiburg und einer der



vier Leiter des Projekts. „Wir legen dabei einen Verstehensbegriff zugrunde, der nicht abstrakt und auch nicht nur inhaltlich ist, sondern Körpersprache und Affekte mit einschließt.“ So könnten etwa minimale stimmliche und körpersprachliche Ausdrücke und Reaktionen dazu beitragen, auch emotionale Formen von Verstehen, Empathie oder Gemeinsamkeit herzustellen – selbst wenn gleichzeitig auf der Inhaltsebene eine Meinungsverschiedenheit verhandelt wird.

Solche Synchronisierungen könnten zum Beispiel wichtige Funktionen in Aushandlungsprozessen haben und als eine Art Puffer bei der Modularisierung von Konflikten dienen, sagt der Psychiater und Psychoanalytiker Carl Eduard Scheidt, Professor an der Freiburger Medizinischen Fakultät. Sie seien aber auch generell bedeutsam für die Beziehungsqualität eines Gesprächs – und hier liege eine Verbindung zur Praxis der Psychotherapie. „Es gibt eindeutige wissenschaftliche Befunde, dass die Qualität der Beziehung zwischen

Psychotherapeut und Patient einer der wichtigsten Indikatoren für den Erfolg der Behandlung ist“, sagt Scheidt. „Aber wir wissen zu wenig darüber, was eine gute Beziehung ausmacht und wie sie entsteht.“

Stefan Pfänder vertritt in der Forschungsgruppe die Linguistik. Der Professor am Romanischen Seminar beschäftigt sich unter anderem mit gesprochener Sprache in alltäglichen Gesprächssituationen; an seinem Lehrstuhl wird die Software MOCA (Multimodal Oral Corpus Analysis) entwickelt, die es auch ermöglicht, in digitalen Videos bestimmte Bewegungsmuster wie etwa Kopfbewegungen computergestützt zu analysieren. Diese Technik soll auch im FRIAS Forschungsschwerpunkt zum Einsatz kommen. Die Wissenschaftler konzentrieren sich hierbei auf Gespräche zwischen zwei erwachsenen Menschen in Alltagssituationen oder im Rahmen von psychotherapeutischen Sitzungen, und – um auch den Aspekt der medialen Vermittlung mit aufzunehmen – auf Dialogszenen aus Fernsehserien.



Einen ersten Korpus aus Videoaufnahmen von Paargesprächen haben die Projektmitarbeiter schon zusammengestellt; daraus stammt das zu Beginn zitierte Beispiel. Weitere Gespräche werden sie selbst aufnehmen und dabei unterschiedliche Beziehungskonstellationen sowie Geschlecht und Herkunft der Sprecher berücksichtigen. Systematisch analysieren wollen sie sowohl sprachliche Inhalte als auch Bewegungsabläufe – und ihr Zusammenwirken: „Wir wollen verstehen, wie Körperverhalten im Zusammenhang mit Sprache Wirkung erzielt“, sagt Claas Lahmann, Ärztlicher Direktor der Klinik für Psychosomatische Medizin und Psychotherapie am Uniklinikum und Professor an der Medizinischen Fakultät.

Auch Computer, die in Live-Situationen feine Bewegungsmuster bestimmter Körperpunkte hochauflösend erkennen und aufzeichnen, sollen zum Einsatz kommen: „Die Technik stammt eigentlich aus dem Gaming“, sagt Lahmann. Ihr Vorteil: Sie störe die natürliche Gesprächs-

## RESONANZ – RHYTHMUS – SYNCHRONISIERUNG INTERAKTIONEN IN ALLTAG, THERAPIE UND KUNST

Mit Beiträgen von Stefan Pfänder, Hermann Herlinghaus und Carl Eduard Scheidt in Zusammenarbeit mit Claas Lahmann

Der Begriff der Resonanz – ursprünglich eine akustische Metapher – wird derzeit vielfach verwendet, um sprachliche und leibliche, aber auch psychologische und physikalische Prozesse zu beschreiben. Es geht um die Bedingungen dafür, dass etwas oder jemand in Schwingung versetzt wird, und darum, welche Rückkopplungen durch solches Mitschwingen in Interaktionssystemen erzeugt werden – letztlich: wie zwei Systeme einen gemeinsamen Rhythmus finden und sich synchronisieren.

Die Beiträge des Bandes fragen: Wie können Synchronisierungen und Desynchronisierungen sowie ihre Rhythmen wissenschaftlich erfasst werden? Resonanz erweist sich dabei als Konzept mit großer integrativer Kraft – sowohl zwischen den Forschungsrichtungen als auch zwischen Theorie und alltäglicher, therapeutischer und künstlerischer Praxis.



Breyer, T., Buchholz, M. B., Hamburger, A., Pfänder, S., & Schumann, E. (Eds.). (2017). *Resonanz-Rhythmus-Synchronisierung: Interaktionen in Alltag, Therapie und Kunst* (Vol. 108). transcript Verlag.

situation nicht. „Wir wollen keine Laborsituation schaffen und den Gesprächspartnern irgendwelche Marker aufkleben.“ Die Beschäftigung mit der Rolle des Körpers in der Kommunikation sei für die Psychotherapieforschung sehr wichtig, sagt Lahmann: „Zugrunde liegt die Vorstellung, dass wir keinen Körper haben, sondern ein Körper sind.“ Sein Fachgebiet könne dabei methodisch von der *Akkuratesse* der sprach- und kulturwissenschaftlichen Analysen profitieren: „Wir führen die linguistisch-wissenschaftliche Genauigkeit zusammen mit der klinischen Bedeutsamkeit.“

In ihrem Projekt wollen die Forscher eine Klassifikation für verschiedene Formen der Synchronisation in Ausnahmsituationen entwickeln. So soll etwa das Zusammenspiel von Sprache mit ausgewählten Hand-, Arm- und Rumpfbewegungen genau analysiert werden. Eine wichtige Kategorie ist hierbei die zeitliche Dimension, also Timing und Rhythmus, in dem die Gesprächspartner das kommunikative Verhalten des jeweils anderen voraussehen, sprachlich und körperlich reagieren und sich so einander anpassen. Ein weiterer Fokus liegt auf dem Modalitätenwechsel: Wann reagiert etwa ein Gesprächspartner auf eine sprachliche Äußerung seines Gegenübers mit einem Nicken und dieser wiederum mit einem Lächeln oder einem zustimmenden Laut?

„Diese Mechanismen laufen meist weitgehend automatisiert und unwillkürlich ab“, sagt Scheidt. Sie sind zum Teil ritualisiert und entstehen doch erst spontan und durch wech-



Vereint Expertinnen und Experten verschiedener Disziplinen: der Forschungsschwerpunkt "Synchronization in Embodied Interaction" mit (v.l.n.r.) Prof. Dr. Hermann Herlinghaus, Prof. Dr. Carl Eduard Scheidt und Prof. Dr. Claas Lahmann. Nicht im Bild: Prof. Dr. Stefan Pfänder

selseitige Reaktionen in der konkreten Situation; die Wissenschaftler sprechen auch von emergenten Prozessen. Inwieweit soziale, kulturelle, geschlechtliche Unterschiede in diese mit einfließen, ist ebenfalls Teil der Forschungsfrage. Die Arbeit der Gruppe wird begleitet durch eine Reihe von Workshops und Kolloquien am FRIAS, die sich zum Beispiel mit den Themen Rhythmus und Resonanz in Kunst und Therapie oder dem Stand der multimodalen empirischen Forschung widmen. Die Wissenschaftler laden auch Fachkolleginnen und Fachkollegen aus anderen Bereichen wie Entwicklungspsychologie oder Musikwissenschaft ans FRIAS ein und wollen so ein Netzwerk aufbauen.

„Weitreichende Konsequenzen“ habe der ganzheitliche Ansatz des Projekts auch für die Geisteswissenschaften mit ihrer langen Tradition

der Vernunft, die den Körper dominiere, sagt Kulturwissenschaftler Herlinghaus: „Zentralbegriffe der Moderne beruhen auf der Norm der Trennung von Geist und Körper – etwa die Vorstellung selbstbestimmter, autonomer Individualität.“ Erst in jüngerer Zeit habe eine Vorstellung von „Dividualität“ mehr Aufmerksamkeit gewonnen, die das Individuum von vornherein durch Kommunikations- und Austauschprozesse betroffen sieht. So sei auch die kommunikative Bedeutung des Körpers stärker in den Blick geraten, die zuvor allenfalls in Spezialdisziplinen wie Theater- und Performancewissenschaften Thema war.

Auch zu anderen Forschungsergebnissen gebe es zahlreiche Berührungspunkte, sagt Psychotherapeut Scheidt. Erwa zum viel diskutierten Phänomen der „Spiegelneuronen“ im Gehirn, die beim Betrachten ei-

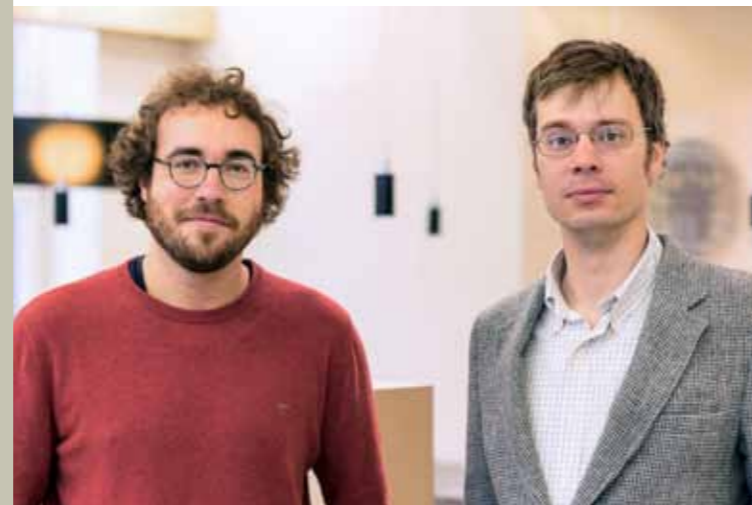
ner Handlung so reagieren, als würde man diese selbst ausführen. Oder zur Bindungsforschung, die in der gegenseitigen Imitation von Lauten und Bewegungen eine Grundlage dafür sieht, dass Bindungen zwischen einem Säugling und seinen Bezugspersonen entstehen können. Dennoch sei das Zusammenwirken von Sprache und körperlichen Ausdrucksformen in der alltäglichen Kommunikation noch nicht eingehend untersucht. „Es ist eine paradoxe Situation, in die wir uns einschalten“, sagt Herlinghaus: „Das Phänomen ist anscheinend so selbstverständlich und normal, dass die spezialisierte Wissenschaft es bisher übersehen hat.“

Das Programm des einjährigen Forschungsschwerpunkts sei „sehr ambitioniert“, sagt Herlinghaus: „Das Erstellen eines Hypothesenkörpers wird sicherlich über die FRIAS-Förderperiode hinausgehen.“ Ziel sei es, in dieser Zeit einen weiteren Förderantrag auf den Weg zu bringen. „Letztlich geht es uns um ein sehr umfassendes Verständnis von Sinnstiftung in Interaktionen – über die Diskursinhalte hinaus.“ Das sei Grundlagenforschung mit zahlreichen Anwendungsmöglichkeiten, sagt Scheidt: „Nicht nur in der Psycho-, Körper- und Musiktherapie, sondern generell in der Arzt-Patienten-Beziehung oder in der Kommunikation von Lehrenden mit ihren Schülerinnen und Schülern – bis hin zu Fragen der Mensch-Maschine-Kommunikation in künftigen Projekten.“ (tg)



## BEAUTY AND INTEREST IN SCIENCE

**Oliver Bräunling and  
Jacob Sider Jost**



*As a hub of disciplinary and interdisciplinary exchange, FRIAS provides more than just a platform for project-related conversations. Sometimes our fellows also engage in lively discussions about the underlying concepts of modern day science. These exchanges benefit from the diverse perspectives the FRIAS fellows bring along from their respective fields of research. This is most certainly the case for Dr Oliver Bräunling and Dr Jacob Sider Jost: the former is a pure mathematician based in Freiburg, the latter a scholar of English literature and intellectual history from Pennsylvania, USA.*

When Dr Bräunling gave an inspiring talk about the beauty he finds in algebraic geometry at the annual fellow retreat last October, it sparked a discussion about the role of beauty and interest in science between him and Dr Sider Jost, who focuses on the axiomatic concept of interest in the long 18th century. So we sat down with them to talk about their respective research projects as well as fractals, poetry and the flawed nature of everyday language.

**FRIAS: Thank you very much for taking the time to talk to us. Oliver, could you please give us a short introduction to the topic of your research project here at FRIAS?**

**Bräunling:** It's called "K-theory of Cartier crystals". The letter K in K-theory comes from Klassen, the German word for class; it's a classification theory. Historically, this theory began with the classification of geometric structures, but as time passed it was seen that the same ideas could be used to help classify all sorts of mathematical objects. Nowadays, it's a mathematical discipline in itself. And a "Cartier crystal" is an abstract concept whose definition does

not resemble that of a differential equation at all, but which behaves a lot like one, and is used to study symmetries of equations. The idea of the project is to bring these two methods together.

**FRIAS: You gave a short presentation at the FRIAS retreat where you spoke about the beauty of mathematics. That sounds unusual at first, since mathematics could be considered to be the grammar of logic and rationality. Where is the beauty in that?**

**Bräunling:** Perhaps there's a feeling that when you're doing mathematical research you start with a set of axioms and then the only path you can follow is determined by logical rules – which doesn't leave much creative freedom for the researcher. But, actually, this is not the case. There are many times when you can and should use some creative ideas to approach a particular problem. Maybe it's a little bit like Occam's Razor: when you're tackling a particular problem, it's best to try and find a simple, straightforward approach. And that approach might not work

as you had hoped, so you have to modify it and find another path – and then beauty is a good guiding principle.

**FRIAS: Jacob, your topic of interest is... "interest" in the long 18th century. And you've come across this term in a variety of different contexts with a variety of different implications throughout this period. What is the connection between all of the different interests you've been looking at?**

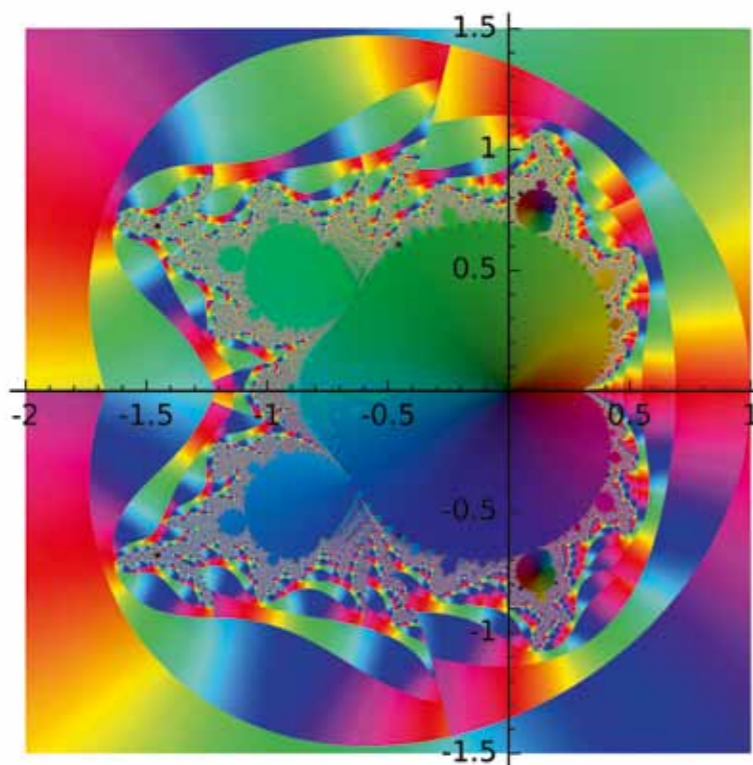
**Sider Jost:** (Laughs.) Eventually the answer to that question will be a 200-page book. I believe that as human beings we borrow ways of thinking – frameworks of thinking – from different parts of our lives and experiences. So if you are a poet and you're also a politician, as was the case for 18th century poets like Joseph Addison or Matthew Prior, or if you are an economist like Adam Smith, but you also work in the household of a Scottish nobleman or as an administrator at Glasgow University in the 1760s: the things that you do in one part of your life will influence the way you think and

the way you act in another part of your life. And the thing about interest in the 18th century, and today at FRIAS, is that it's a word that spans across different spheres. So when we follow that word we can see how people's ideas are influenced across those spheres. For an 18th century novelist, Daniel Defoe, for instance – who was celebrated as the author of Robinson Crusoe, the mythic story of a man abandoned alone on an island, but was also an economic writer who thought about how to make England a richer country. In Robinson Crusoe, Defoe figured out how to tell a story about a man working hard in order to get rich in a way that is entertaining, pleasurable, fantastical. Robinson Crusoe makes decisions about where to invest his time and energy, just like a merchant or manufacturer in England. But he does this on a desert island. Defoe made economic ideas interesting by combining them with an adventure story. And I think that a lot of the cross-over effects that I'm looking at in the 18th century are still with us today. I believe that beauty and interest are maybe connected. And I think it's worth thinking about the relationship between them.

**FRIAS: Let's get into this relationship between beauty and interest. For you, Oliver, the notions are firmly connected?**

**Bräunling:** The driving force behind what basically everyone in pure maths does is interest. But it's not as if our findings need to be interesting for particular applications – that would be applied maths. So you





Are fractals beautiful? Experts and laypeople seem to have different perspectives on these abstract objects.  
Image: Oliver Bräunling

start to look into certain questions. If you're not drawn to a particular application, then the question is: what should you be working on? And as a lecturer, the question is also: where should you guide your students, what can you try to interest them in? In all of these regards, beauty is an extremely useful principle that can reassure you that certain research is worthwhile. If you develop a theory and after months of work it turns out that there is no elegant structure emerging, then you have probably made a mistake. And the question is also: how will you ever interest other people in reading your work if it's not clear what it's good for? On the other hand, if after months or years you suddenly see beautiful structures emerge from your research, then it

will be very easy for you to get your colleagues interested in the results you have obtained.

**FRIAS:** Hence beauty is a concept that can be used to spark other people's interest in a particular area. So you have this notion of intersubjectivity in beauty. Jacob, is there something like an objective aspect of beauty that has this power to draw people towards it?

**Sider Jost:** For Kant beauty is and should be disinterested: the experience of beauty, as opposed to something that is merely agreeable or pleasurable. Kant does not think that a roasted goose and a cold glass of white wine are beautiful, he just thinks that they're agreeable and essentially pleasurable. Thus the beautiful and the interesting are two distinct things. To say that something is beautiful is to make a universal claim. In other words, if you say that something is beautiful, it should be beautiful for everyone, as opposed to something that you just like. You like Cola and I like lemonade – this is not a universal claim. But when asserting that the Schwarzwald is a beautiful landscape, I claim that everyone should find it beautiful.

Perhaps the interesting makes a more limited claim because the idea of interest is that it has some particular relevance to you – you work on K-theory, therefore this article will be of interest to you. Whether Kant is right about beauty is also a question that is worth thinking about – if beauty is interesting, if it's not disinterested. Maybe, after all, beauty

doesn't make this universal appeal that philosophers have thought of. It's more about building communities of people who are interested in the same things. And one point that Oliver made really eloquently in his talk at the retreat was that it is only by being educated, being led into mathematics, that you can see the beauty. People just look at fractals and say: "Oh, the fractals! What beautiful colours." But the colours are irrelevant. You made this point: what's beautiful is the elegance and simplicity of the underlying ideas, and you only get a sense of those through education.

**FRIAS:** By using beauty as a concept that sparks people's interest, you bring the appeal of maths to laypeople – you overcome the barrier of language that exists between experts and laypeople.

**Bräunling:** Yes, in maths we want to avoid any potential for ambiguity, so we've developed this extremely unique and artificial language, which has become completely incomprehensible outside of maths. We aim to remove all ambiguity and therefore have many, many definitions. So, for example, if you use a word like "shape" or "geometry" a mathematician would not accept this since both words may refer to many different concepts. When mathematical articles are written, they always employ a very different writing style to how we would express ourselves in any other discipline. For example, repetition of words is encouraged rather than discouraged. So if you write "If A and B then it follows that C", and you have a second statement of the

same nature immediately afterwards, you'll prefer to use precisely the same wording, just to make completely clear to the reader that these statements are fully analogous – whereas outside maths you would always try to vary your wording. But in maths this would always create the danger of a reader believing that this modification of the wording is supposed to mean something, that there is some actual statement hidden in it, which must be avoided.

**Sider Jost:** On the contrary, poetry does work through ambiguity and through multiple associations and references of words. Indeed, I think that one of the most basic properties of poetry is its use of language – that it draws attention to language as sound. Rhyme is an example of this, metre is an example of this, the repeated consonant and vowel sounds are examples of this. Those are the hallmarks by which we distinguish poetic from non-poetic language. Even in temporary, apparently free or non-structured language.

And from ancient times on, intellectuals actually have used poetic language to express scientific, if not strictly mathematical, concepts. Erasmus Darwin, Charles Darwin's grandfather, in the early 19th century, was perhaps the last poet who'd try to transmit new scientific knowledge through poetry. The "academic intellectual division of labour", to use an Adam Smith term, has taken those two things apart. And that certainly has brought great gains. But perhaps it brings losses as well, that those things have gone their separate ways.

**Bräunling:** I fear the more precise the language is that you use, the less readable the text can become. In their famous *Principia Mathematica*, Russell and Whitehead tried to set out the basic foundations for all of maths. Their entire logical arguments are written without using a single word, just symbols. So of course their framework is extremely precise. But I'm pretty sure nobody will ever actually want to read this book.

**FRIAS:** So you can't do without interest in science. A scientific text has to be appealing to the reader, to a certain degree, otherwise the potential that the text holds is lost?

**Sider Jost:** That's right, you have to be interesting. That's what is starting at the latest with Henry James, and it's the prescription for the modern creative author as well. Henry James, the great Anglo-American novelist, says: your responsibility is to be interesting. Plato would've said: be good or be beautiful. The medieval critic or philosopher might have said: be righteous or be true. Our credo, however, is to be interesting. (jp)



# FROM A MOLECULAR MACHINE TO AN ARTIFICIAL MUSCLE



**Andreas Walther**  
(with his cooperation partner  
**Nicolas Giuseppone**)

The chemist Andreas Walther researches topics in the fascinating space between biology, chemistry and materials science. His work also involves a dash of philosophy, as these topics touch on the fundamental mechanisms of life. Since November 2016, Andreas Walther has been Professor of Functional Polymers in the Faculty of Chemistry and Pharmacy at the University of Freiburg. His research focuses on bio-inspired material systems which are programmed with particular functions. "I'm interested in material systems which can act autonomously on a molecular level and which self-regulate their functional characteristics macroscopically," summarises the scientist. Bionics, too, focuses on bio-inspired materials. In this field, researchers are interested in their structure. Walther's work goes one step further. He wants to develop materials that are inspired by the dynamics of cellular processes itself on a molecular level.

Walther designs special polymers and other large molecules, then adds a chemical fuel to these and embeds them in complex reaction networks with feedback mechanisms. These

cause the material systems to make controlled changes to their characteristics. The aim is, for example, to programme a material interacting with a fuel in such a way that the fuel is used up after a predetermined period of time and the material then returns to its original state. "One possible application would be to use a material of this kind in surgical procedures," explains Walther. The substance would be injected into the bloodstream and the fuel would stop the blood flow for a precisely determined period of time, e.g. during surgery. Once the fuel is used up, the blood flow would then safely resume. "These materials organise themselves independently out of extremely small building blocks. The material systems can be pictured as Lego blocks," says Walther. "The fuel causes the individual building blocks to form the nubs that hold the blocks together. This process requires energy. But the building blocks are intrinsically designed in such a way that they use up the energy and fuel. When this happens, the nubs disappear and the material returns to its original state." Another conceivable possibility is to create a material that is attracted to cancer cells when it is injected into

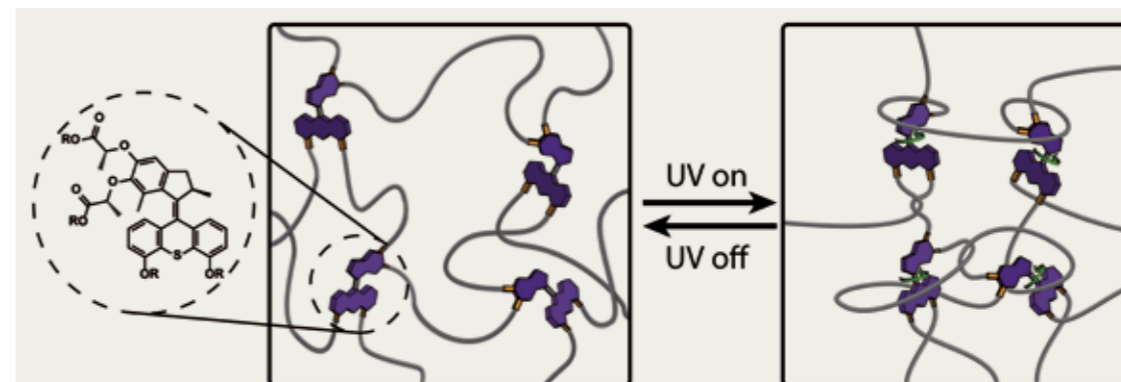
the body, as these cells contain large quantities of biological fuel. The material could then trap the cancer cells or even form a gel within them in order to disable them. One fuel used by Walther is adenosine triphosphate (ATP), the universal energy currency in biology.

In the summer of 2017 Andreas Walther was awarded a 2-year Joint Fellowship between FRIAS and the University of Strasbourg Institute for Advanced Study (USIAS), and has begun to explore a different area of research that also looks at controllable material systems. Here, too, the focus is on dynamic processes taking place on a molecular level. Together with Nicolas Giuseppone, Professor of Chemistry at the Institut Charles Sadron at the University of Strasbourg, Andreas Walther wants to integrate molecular motors into polymer networks in order to develop materials that are actually mobile on a macroscopic level. "Our aim is to develop artificial muscles. These could be used in soft robotics, for example, or in exoskeletons," explains Walther. Nicolas Giuseppone has already spent a great deal of time

researching molecular motors. These light-driven molecular motors were originally discovered by Ben Feringa, a breakthrough which earned him the 2016 Nobel Prize in Chemistry. They have very complex structures, essentially involving two molecular units rotating against each other on a single axis. The motor is then connected to long polymer molecules. "You can picture the action of the motor as being similar to coiling spaghetti around the axis of a fork," says Walther. For this to generate a usable dynamic, it is essential for the motor to constantly rotate in a single direction only, which is not the case for natural molecular dynamics. The nanomachine is powered by light energy. "This allows us to achieve an extremely efficient energy output," says Walther. Another significant advantage of using light to control the machines is that it is non-invasive. The material is essentially controlled by using a lamp. Potential control parameters involve irradiation time, intensity, and also the spatial aspect. "The idea is to integrate a large number of these motors into a polymer network in order to macroscopically create a dynamic material

that is an adaptation of a muscle," explains Walther. While Giuseppone researches the motors and organogels in Strasbourg, Andreas Walther's work in Freiburg focuses on the material systems and, in particular, on condensed solid state materials (known to all of us as plastics) into which the motors can then be integrated. The team is supported by the postdoctoral researcher, Dr Xuyang Yao, who is synthesising the motors and, in the long run, will also embed these in the polymer network. The FRIAS-USIAS research team is driven by the principle of application-oriented fundamental research. By applying biological principles to artificial materials, they are pushing the boundaries of what has thus far been possible. What particularly fascinates Andreas Walther is the possibility of enabling targeted control of material systems, whether chemically or light-driven, so that they can be utilised in a way that has a direct and tangible benefit for humans.

(pv)



UV light induces molecular rotation of the rotary motors and contraction of the polymer network. As soon as the radiation is turned off, the network returns to its original state. © Guido Creusen



## STRIKING A BALANCE BETWEEN SECURITY AND PRIVACY



*Lorena Bachmaier*

The medical truism that prevention is better than cure is regularly and readily applied to crime fighting. And in the era of ubiquitous information technology and online communication, it finally does seem conceivable for law enforcement to predict and thus prevent crime through electronic eavesdropping. The hope of protecting potential victims from terrorism and other forms of transnational organized crime informs a broad range of proactive international intelligence with the goal of thwarting criminal activities in their planning stage.

But while a world without crime can be envisioned as a utopian idea of a more peaceful society, for civil rights activists the path leading there appears closer to a nightmare of unregulated surveillance. Concerns about the invasion of the privacy of millions of unsuspecting citizens by their own governments, hauntingly sketched in mid-20th century dystopian visions like 1984 or Minority Report, are fueled by recent debates on mass surveillance through

domestic and international intelligence agencies in Europe. The challenge for legal policy is to keep pace with the ever evolving possibilities of information and communication technologies, and to safeguard the principles of democratic societies at the same time.

It is the role of legal research to point out how legislation can be adapted to the changing demands and challenges of information society, with the ultimate goal to strike a balance between security and privacy. This is the field of Lorena Bachmaier, full professor of law at Complutense University, Madrid (UCM), who joined FRIAS as an External Senior Fellow in October 2017 for a period of nine months. In her research, she works at the interface of legal science, legal policy and politics, a longstanding interest that is reflected in her double degree in Law and Political Science with a specialization in International Relations.

After her graduation at UCM with a doctoral dissertation on comparative

public law, she went on to specialize in comparative research on criminal justice systems and procedure, with a focus on human rights protection. Her interest extends to international judicial cooperation, the EU process of legal harmonization and the establishment of the so-called Area of Freedom, Security and Justice (ASSJ). On these subjects Lorena Bachmaier has authored six books and published almost one hundred fifty articles in legal periodicals and books in seven languages. She has lectured at numerous universities and governmental agencies in Europe, Asia and Latin America, and was a visiting scholar at the Universities of Berkeley, Harvard, Stanford and the Max Planck Institute for Foreign International Criminal Law in Freiburg. In 2013, her expertise commended her as chair of the Working Group on Transnational Organized Crime in the Council of Europe, which provided policy makers with recommendations for an Action Plan on combating transnational organized crime.

In her FRIAS project “International Security, Privacy and Criminal Investigation: a Human Rights Approach” Lorena Bachmaier analyses the implications of governmental surveillance and international exchange of intelligence for the fundamental rights of the individual. The secrecy of intelligence, she says, clashes with the transparency required of legal proceedings and encroaches on the fundamental right to privacy of the individual. In this regard, the digitalization of communication presents

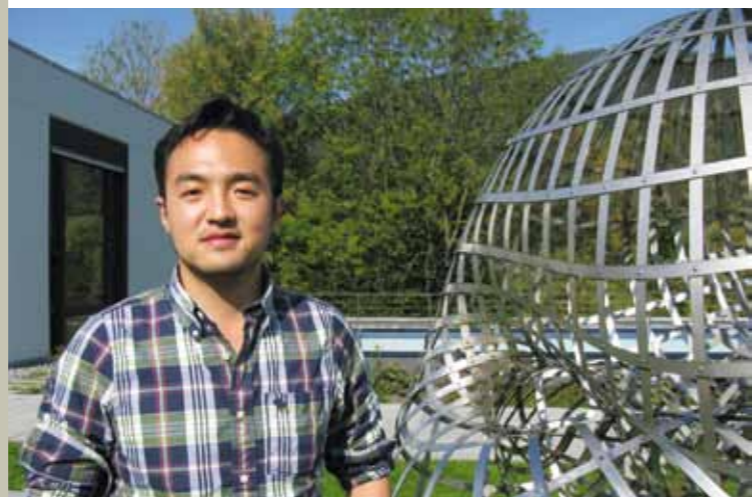
the legislative body with a whole new set of challenges, Lorena Bachmaier explains, as the border between private and public sphere in cyberspace is blurred and needs to be renegotiated. Millions of people lay their lives open on the internet – and most of the time, privacy is a much lesser concern than in the real world, with users giving precedence to communication. However, Lorena Bachmaier argues, individuals need to be able to decide which contents to make public, a requirement that is not always sufficiently ensured. Moreover, the transnational nature of digital communication demands a concerted effort of international legislative bodies.

Lorena Bachmaier is a global citizen at heart and strongly believes in reciprocal enlightenment through international communication and exchange. Comparative law, she explains, serves a twofold purpose: not only does she gain insight into a foreign legal system, but the contrastive perspective opens her eyes for the principles behind the familiar system. Her approach requires this critical reading and comparison of legal codes, case law and practice with the ultimate, if ambitious goal of providing constructive proposals for harmonizing the legislation across borders. Researchers of comparative law, she feels, act as translators between legal cultures in a situation she compares to a legislative tower of Babel. To ensure the viability of her recommendations, her ambition is to incorporate insights from both social science research and legal practitioners.

Like many researchers, Lorena Bachmaier works most productively when she can be fully immersed in her subject. For this she appreciates the quiet, focused atmosphere in her FRIAS office, which allows her to let her city view as well as her mind strive. Beyond that, she stresses how being part of a multicultural interdisciplinary fellow community is a constant source of inspiration and provides the perfect balance to the phases of intensive research. She highly values interaction with the other fellows, as each conversation over lunch or tea, she says, shows her how little she knows – in the most positive sense: it provides her with a new spark, a fresh insight, an idea previously inconceivable. Everyone here, regardless of their discipline, she feels, shares her appreciation for knowledge per se. Lorena describes herself as eternally curious intellectually, and with her inquiring mind she feels right at home with the other seekers of knowledge at FRIAS.

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## FRIAS ALUMNUS CHENYANG XU



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### Chenyang Xu

“In mathematics, each person has her or his own style of thinking. If you talk to others in your field, you will be introduced to her or his angle. So even if we try to solve the same problem, we may have a slightly different viewpoint. But sometimes this is extremely helpful”, Chenyang Xu explains. For him, pure mathematics is a communicative discipline, in which research grants are not spent on equipment or materials, but on funding doctoral and post-doctoral research, and most prominently on travel to meet and exchange with colleagues.

The former FRIAS fellow is a mathematician working in the field of algebraic geometry and a professor at the Beijing International Center of Mathematics Research at Beijing University. Together with Prof. Dr. Stefan Kebekus (University of Freiburg), one of four principal investigators of the FRIAS research focus *Cohomology in Algebraic Geometry*, he is working in the field of higher dimensional geometry. He returned to FRIAS for a short-time

visit in October 2017 and shared his insights into higher education and research in China, the United States, and Europe.

Chenyang Xu studied at Beijing University, one of the top leading universities in China, from 1999 until 2004. Like many other Chinese students, he continued his doctoral studies abroad. “It has been a tradition for students at my university to apply for the top universities in the US, like Harvard, Princeton or MIT.” Chenyang Xu started his PhD research at Princeton University under the supervision of the Hungarian mathematician János Kollár in 2004. He received his doctoral degree in 2008 and continued working in the US for four years, including a position as assistant professor at the University of Utah, before returning to China in 2012.

China has shown a strong interest in expanding and modernising the science and education system in the last two decades, both in quantity and quality. Between 2000 and 2014 the

total number of students increased from 5.8 million in 2000 to an estimate of about 42 million students today. In the late 1970s, after the Cultural Revolution (1966-1976), the higher education system was restarted, Chenyang Xu explains. “In my time, being admitted into college was really considered to be a luxury, but in the late 1990s the government decided to increase the size of universities, which caused the sharp increase in the number of students.”

Internationalisation is another integral component of the Chinese modernisation strategy, by means of increasing the number of collaborations with international universities and research institutes, and by recruiting highly qualified researchers from abroad. For that purpose specifically, China has introduced the *Thousand Talents Plan* in 2005. The programme provides additional state-funding for Chinese researchers that have gained experience in countries outside China and offers them a position as a regular faculty member at a public university. The changes in the quality and structure of Chinese universities are a political aspiration. However, this goal may not be shared by all university members. In the first years, universities showed some resentment in hosting young researchers from the programme, Chenyang Xu explains. In the old university system, for a researcher or professor who had been granted a position within a faculty, this position was permanent, resulting in fewer incentives to actively continue researching. “Now, the Chinese gov-

ernment is trying to integrate a US-like system by offering post-doctoral positions with the possibility of a tenure-track position, which I think inspires people to do research for a longer period.” A substantial difference between Chinese and American universities, according to Chenyang Xu, is the size of departments. Giving more resources to scientists actively researching would demand to downsize some departments, “which in practice is a pretty hard thing to do”, Xu says.

In 2012, Chenyang Xu returned to China as a member of the first generation of young scientists hired through the *Thousand Talents* programme. For two years, he was a research fellow at the Beijing International Center of Mathematics Research. The fellowship gave him enough flexibility for short-term research visits, including a semester at the Institute for Advanced Studies in Princeton, at the Massachusetts Institute for Technology (MIT) and at FRIAS in summer 2014.

In October 2017, Chenyang Xu was awarded the Future Science Prize, a non-governmental award established in 2016 by scientists and business owners in China. When asked about the Prize money of 1 million US dollar, Chenyang Xu reacts shyly and modestly: “I plan to donate part of the money back to the community to start a new prize for younger researchers.” Around the same time, he was offered a professorship at MIT, a compelling incentive to return to the US. But before starting this position,

he will be a visiting professor at the Henri Poincaré Institute in Paris for one semester.

Chenyang Xu sees no reason why China would change its current modernisation and internationalisation strategy, including providing additional resources for excellent researchers. Will these ambitions be sufficient to compete against Ivy-league universities in the US? In Chenyang Xu’s case, it remains open if he will stay in the US in the long run, return to China or continue to work and live on two continents.

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**FOCUS:  
COHOMOLOGY IN  
ALGEBRAIC GEOMETRY AND  
REPRESENTATION THEORY**

◆ **Prof. Annette Huber-Klawitter**

10/2017 – 07/2018  
Internal Senior Fellow  
University of Freiburg  
Mathematics  
*Focus PI*

◆ **Prof. Stefan Kebekus**

10/2017 – 07/2018  
Internal Senior Fellow  
University of Freiburg  
Mathematics  
*Focus PI*

◆ **Prof. Wolfgang Soergel**

10/2017 – 07/2018  
Internal Senior Fellow  
University of Freiburg  
Mathematics  
*Focus PI*

◆ **Prof. Mark De Cataldo**

09/2017 & 05/2018 – 07/2018  
External Senior Fellow  
(Marie S. Curie FCFP)  
Stony Brook University,  
New York, USA  
Mathematics  
*Support and symmetries for  
Hitchin fibrations*

◆ **Prof. Frédéric Déglise**

11/2017 – 03/2018  
External Senior Fellow  
(Marie S. Curie FCFP)  
Burgundy Mathematical  
Institute, Dijon, France  
Mathematics  
*Homotopy t-structure and a  
Leray-type spectral sequence*

◆ **Prof. Philippe Eyssidieux**

03/2018 – 05/2018  
External Senior Fellow  
(Marie S. Curie FCFP)  
University of Grenoble, France  
Mathematics  
*New Kähler groups*

◆ **Prof. Florian Ivorra**

02/2018 – 07/2018  
External Senior Fellow  
University of Rennes, France  
Mathematics  
*Motives, nearby cycles and their  
connections to non-archimedean  
geometry and birational geometry*

◆ **Prof. Johannes Nicaise**

10/2017 – 12/2017 & 04/2018  
External Senior Fellow  
(Marie S. Curie FCFP)  
Imperial College London, UK  
Mathematics  
*Non-archimedean Morse theory,  
mirror symmetry and the minimal  
model program*



◆ **Prof. Jorge Vittoro Pereira**

12/2017 – 02/2018  
External Senior Fellow  
(Marie S. Curie FCFP)  
National Institute of Pure and  
Applied Mathematics, Rio de  
Janeiro, Brazil  
Mathematics  
*Birational geometry of foliations*

◆ **Prof. Gisbert Wüstholz**

09/2017 – 12/2017 & 04/2018  
External Senior Fellow  
University of Zürich  
Mathematics

**FOCUS: SYNCHRONIZATION  
IN EMBODIED INTERACTION**

◆ **Prof. Hermann  
Herlinghaus**

10/2017 – 07/2018  
Internal Senior Fellow  
University of Freiburg  
Cultural Studies and Film  
Semiotics  
*Focus PI*

◆ **Prof. Claas Lahmann**

10/2017 – 07/2018  
Internal Senior Fellow  
University Hospital Freiburg  
Psychosomatics and Movement  
Therapy  
*Focus PI*

◆ **Prof. Stefan Pfänder**

10/2017 – 07/2018  
Internal Senior Fellow  
University of Freiburg  
Interactional Linguistics and  
Multimodal Corpus Linguistics  
*Focus PI*

◆ **Prof. Carl Eduard Scheidt**

10/2017 – 07/2018  
Internal Senior Fellow  
University Hospital Freiburg  
Psychotherapy and Psychoanalysis  
*Focus PI*

◆ **Prof. Anna Buchheim**

10/2017 – 02/2018  
External Senior Fellow  
(Marie S. Curie FCFP)  
University of Innsbruck, Austria  
Psychology  
*The role of unresolved attachment  
trauma in the transgenerational  
context of mother-infant inter-  
action and its clinical relevance for  
psychotherapy*

◆ **Prof. Kate Burridge**

11/2017 – 01/2018  
External Senior Fellow  
(Marie S. Curie FCFP)  
Monash University, Melbourne,  
Australia  
Linguistics  
*From Obelisks and Asterisks to  
modern-day views about English  
language usage*

◆ **Prof. Nancy Campbell**

09/2017 – 11/2017 &  
05/2018 – 08/2018  
External Senior Fellow  
(Marie S. Curie FCFP)  
Rensselaer Polytechnic Institute,  
Troy, USA  
History of 20th Century Science  
and Medicine  
*Resonant histories: Synchronization  
in social movements and science*

◆ **Prof. Sigrid Norris**

02/2018 – 07/2018  
External Senior Fellow  
(Marie S. Curie FCFP)  
Auckland University of Technolo-  
gy, New Zealand  
Linguistics  
*Acquisition of multimodal  
synchronization*

◆ **Prof. Wolfgang Tschacher**

01/2018 – 06/2018  
External Senior Fellow  
(Marie S. Curie FCFP)  
University Hospital of Psychiatry  
and Psychotherapy,  
Bern, Switzerland  
Psychology  
*Embodied communication and its  
basis in nonverbal synchrony*

**HUMANITIES AND SOCIAL  
SCIENCES**

◆ **Prof. Lorena Bachmaier**

10/2017 – 06/2018  
External Senior Fellow  
(Marie S. Curie FCFP)  
Complutense University of  
Madrid, Spain  
Law  
*International security, privacy and  
criminal investigation:  
A human rights approach*

◆ **Dr. Lawrence Chua**

01/2018 – 08/2018  
Junior Fellow  
(Marie S. Curie FCFP)  
Syracuse University, USA  
History of Architecture and  
Urban Development  
*Bangkok Utopia: Leisure architec-  
ture, urban culture, and public  
space in 20th century Thailand*

◆ **JunProf. Eva von Contzen**

04/2017 – 03/2022  
Junior Fellow  
University of Freiburg  
English Literature  
*Lists in literature and culture:  
Towards a Listology (LISTLIT)*

◆ **Dr. Majid Daneshgar**

09/2017 – 08/2018  
Junior Fellow  
(Marie S. Curie FCFP)  
University of Otago, New  
Zealand  
Islamic Studies  
*Censorship in Malay Islamic and  
exegetical works*

◆ **Dr. Anne Holzmüller**

10/2017 – 07/2018  
Junior Fellow  
University of Freiburg  
Musicology  
*Immersion as a mode of sacred mu-  
sic experience in the late eighteenth  
century*

◆ **Dr. Errol Lord**

09/2017 – 08/2018  
Junior Fellow  
(Marie S. Curie FCFP)  
University of Pennsylvania,  
Philadelphia, USA  
Philosophy  
*Knowing the normative world*

◆ **Prof. Evie Malaia**

10/2017 – 07/2018  
External Senior Fellow  
(Marie S. Curie FCFP)  
Purdue University,  
West Lafayette, USA  
Cognitive Neuroscience  
*Role of visual and linguistic com-  
plexity in language development*

◆ **Prof. Catherine McBride**

10/2017 – 07/2018  
External Senior Fellow  
(EURIAS Programme)  
The Chinese University of Hong  
Kong  
Psychology  
*Towards a global understanding  
of Dyslexia: Cognitive-perceptual,  
cognitive-linguistic, socio-cultural,  
and neurobiological aspects*

◆ **Prof. Andreas Musolf**

09/2017 – 12/2017  
External Senior Fellow  
(Marie S. Curie FCFP)  
University of East Anglia,  
Norwich, UK  
Linguistics  
*How are national identities and  
emotional attachment to them  
expressed across different languages  
and cultures?*

◆ **Dr. Michael Rießler**

10/2017 & 03/2018 – 09/2018  
Junior Fellow  
University of Freiburg  
Linguistics  
*Language documentation meets  
language technology: The next step  
in the description of Komi*

◆ **Dr. Noa Roei**

02/18 – 06/18  
Junior Fellow  
University of Amsterdam,  
Netherlands  
Comparative Literature and  
Cultural Analysis

◆ **Dr. Jacob Sider Jost**

09/2017 – 08/2018  
Junior Fellow  
(Marie S. Curie FCFP)  
Dickinson College Carlisle, USA  
Literature  
*Interest in the long eighteenth  
century*

◆ **Dr. Paolo Silvestri**

12/2017 – 09/2018  
External Senior Fellow  
(Marie S. Curie FCFP)  
University of Torino, Italy  
Philosophy of Law and Political  
Philosophy  
*Anthropology of taxation. Enquiry  
into the human foundations of  
fiscal democracy*

◆ **JunProf. Bernhard  
Spielberg**

01/2015 – 08/2018  
Junior Fellow  
University of Freiburg  
Religious Studies  
*Global transformations of Catholi-  
cism: Strategies of Plurality – Role  
models – Questions of God*

◆ **Prof. Dimitris  
Stamatopoulos**

10/2017 – 08/2018  
External Senior Fellow  
(Marie S. Curie FCFP)  
University of Macedonia,  
Thessaloniki, Greece  
History  
*Orthodox church and civil society  
in the Ottoman and post-Ottoman  
southeastern Europe  
(18th - 20th c.)*

◆ **Prof. Onur Yildirim**

10/2017 – 07/2018  
External Senior Fellow  
(EURIAS Programme)  
Middle East Technical University,  
Ankara, Turkey  
History  
*The sources of the global refugee  
regime: Neuilly, Lausanne, and  
Potsdam in historical perspective*



#### LIFE, NATURAL AND TECHNICAL SCIENCES & MEDICINE

##### ◆ Dr. Milena Bertolotti

06/2017 – 05/2018  
Junior Fellow  
(Alexander von Humboldt-Fellow)

University of Freiburg  
Immunobiology  
*Mapping the nanoscale organization of the BCR redox machinery*

##### ◆ Prof. Tomasz R. Bielecki

02/18 – 05/18  
External Senior Fellow  
Illinois Institute of Technology, Chicago  
Mathematics

##### ◆ Dr. Oliver Bräunling

10/2017 – 07/2018  
Junior Fellow  
University of Freiburg  
Mathematics  
*Algebraic k-theory and the mystery of special algebraic structures in characteristic  $p > 0$*

##### ◆ Prof. Bernhard Breit

04/2017 – 12/2017  
Internal Senior Fellow  
University of Freiburg  
Organic Chemistry  
*Multicomponent supramolecular catalysts for sustainable chemical synthesis*

##### ◆ Dr. Stefan Buhmann

10/2014 – 09/2018  
Junior Fellow  
University of Freiburg  
Physics  
*Macroscopic quantum electrodynamics and its consequences*

##### ◆ Dr. Gabriel Dufour

10/2017 – 09/2018  
Alexander-von-Humboldt Fellow  
University of Freiburg  
Physics  
*Bosonic mixtures on a lattice: (In-)Distinguishability*

##### ◆ Dr. Ghada Ibrahim

11/2016 – 08/2018  
Junior Fellow  
(Marie S. Curie FCFP)  
Electronics Research Institute, Giza  
Electronics and Engineering  
*Development of RFID circuit building blocks using an organic TFT transistor technology*



##### ◆ JunProf. Christian Leukel

04/2017 – 01/2018  
Junior Fellow  
University of Freiburg  
Neurosciences  
*Investigating the corticospinal system in humans*

##### ◆ Prof. Robert Murphy

10/2017  
External Senior Fellow  
Carnegie Mellon University, Pittsburgh, USA  
Computational Biology  
*Automated interpretation of fluorescence microscope images*

##### ◆ Prof. Murugappan Muthukumar

10/2017 & 12/2017 & 02/2018  
External Senior Fellow  
(Marie S. Curie FCFP)  
University of Massachusetts, Amherst, USA  
Physics  
*Sensing of single polymer molecules with nanopores: Joining the forces of theory and experiment*

##### ◆ Dr. Ian Riddellstone

09/2016 – 08/2018  
Junior Fellow  
(Alexander-von-Humboldt Fellow)  
University of Bath, UK  
Chemistry  
*Preparation of stabilised and free silylium and silicocenium ions featuring known and novel weakly coordinating anions; reagents for the coordination and activation of small molecules*

##### ◆ Dr. Michael Staab

10/2017 – 07/2018  
Junior Fellow  
University of Freiburg  
Biology  
*Is tree phylogenetic diversity affecting the diversity of arthropods and microorganisms across taxa and trophic levels?*



#### JOINT RESEARCH GROUPS FREIBURG/STRASBOURG

*"MapRNA: Mapping RNA-RNA pairings in vivo in bacteria and their importance in fast acclimation processes"*  
10/2017 – 09/2019

##### ◆ Prof. Wolfgang Hess

Internal Senior Fellow  
University of Freiburg  
Biology

##### ◆ Prof. Pascale Romby

External Senior Fellow  
University of Strasbourg  
Biology

*"Implementation of light-powered nanomachines into polymer bulk: From fundamentals of active matter to functional, life-inspired polymer materials"*  
10/2017 – 09/2019

##### ◆ Prof. Nicolas Guiseppone

External Senior Fellow  
University of Strasbourg  
Chemistry

##### ◆ Prof. Andreas Walther

Internal Senior Fellow  
University of Freiburg  
Chemistry



*"Linking Finance and Insurance: Theory and Applications"*  
10/2017 – 09/2019

##### ◆ Prof. Jean Bérard

External Senior Fellow  
University of Strasbourg  
Mathematics

##### ◆ Prof. Ernst Eberlein

Internal Senior Fellow  
University of Freiburg  
Mathematics

##### ◆ Prof. Karl-Theodor Eisele

External Senior Fellow  
University of Strasbourg  
Mathematics/Financial Economics

##### ◆ Prof. Thorsten Schmidt

Internal Senior Fellow  
University of Freiburg  
Mathematics

#### FRIAS ALUMNI PROGRAMME

##### ◆ Prof. Leonie Cornips

09/2017 – 10/2017  
Meertens Institute & Maastricht University, Netherlands  
Linguistics

##### ◆ Prof. Mark Greengrass

10/2017  
University of Sheffield, UK  
History

##### ◆ Prof. Susanne Günthner

01/2018 – 02/2018  
University of Münster, Germany  
Linguistics



## MARIA SIBYLLA MERIAN INSTITUTE FOR ADVANCED STUDIES AFRICA

*FRIAS unterstützt den Aufbau  
eines neuen Forschungskollegs  
in Ghana*



Große Anstrengungen haben zu einem großen Erfolg geführt: die Einwerbung von Bundesmitteln für die Gründung eines neuen Forschungskollegs an der University of Ghana wird die Arbeit des FRIAS über die kommenden Jahre prägen. Es geht um den Aufbau des ersten universitätsbasierten Institute for Advanced Studies (IAS) in Afrika. Das geplante Maria Sybilla Merian Institute for Advanced Studies entsteht an der University of Ghana und umfasst eine kleinere Dependence in Dakar, Senegal.

Das Institut soll den wissenschaftlichen Dialog in den Geistes- und Sozialwissenschaften zwischen Ghana und Deutschland, Afrika und der nördlichen Hemisphäre maßgeblich intensivieren. Es soll zu einem internationalen Zentrum der Begegnung werden und damit wichtige Impulse für die Geistes- und Sozialwissenschaften in Nord und Süd geben. Das Rahmenthema „Sustainable Governance“ eröffnet ein breites Feld neuer Themen, Herangehensweisen und Optionen zur Zusammenarbeit.

Das BMBF hat mit dem Merian-Programm zur Gründung von Forschungskollegs in Ländern der südlichen Hemisphäre ein internationales neues Instrument für die Unterstützung der Geistes- und Sozialwissenschaften geschaffen. Drei Projekte befinden sich bereits in der Umsetzung (in Indien, Brasilien und Mexiko). Das Merian IAS Africa ist das vierte geförderte Projekt. Mit der Unterstützung von themenbezogenen Forschungskollegs hat das

BMBF im Rahmen des Käte Hamburger Kolleg-Programms bereits sehr gute Erfahrungen gemacht. Zur stärkeren wissenschaftlichen Vernetzung mit den Ländern der südlichen Welthälfte nutzt es nun die gleiche Grundidee. Das Bundesministerium sieht sich als Initiator der neuen Kollegs. Langfristig sollen die Institutionen von den jeweiligen Gastuniversitäten und -ländern getragen werden.

Die Universität Freiburg hat für dieses Vorhaben die Projektführung übernommen. Das Arnold Bergsträsser Institut (ABI) mit seinem Leiter Professor Andreas Mehler hatte zunächst die Initiative für dieses Vorhaben ergriffen. Das ABI bringt vielfältige Kompetenzen im Bereich der African Studies ein. Es verfügt über ein weltweites Netzwerk von Kooperationspartnern und jahrelange Erfahrungen in der Durchführung von Forschungsprojekten in Afrika. Das FRIAS bringt umfassende Erfahrungen ein, wie ein IAS sinnvoll aufgebaut und gestaltet werden kann. Hinzu kommen aus dem Netzwerk der University-Based Institutes for Advanced Study (UBIAS) die vielseitigen Kenntnisse, wie die Idee des Forschungskollegs auch in anderen Ländern und Erdteilen umgesetzt wird.

Die Entscheidung für den afrikanischen Partner erfolgte nach klar definierten, strategischen Kriterien. Gesucht war eine der Top-Universitäten auf dem Kontinent mit starker internationaler Ausrichtung in einem politisch stabilen, demokratisch regierten Land. Die Suche erbrachte

ein klares Ergebnis: die University of Ghana in Legon/Accra in Westafrika, einer Region von großer politischer Bedeutung für Deutschland und Europa.

Es folgten aufregende Wochen über den Jahreswechsel 2016/17. Für unsere Partner in Accra kam die Anfrage überraschend. Sie mussten unter hohem Zeitdruck zu einer Entscheidung über diese Kooperationsanfrage kommen. Eine Reise nach Ghana im Februar 2017 und wichtige Begegnungen mit den dortigen Kolleginnen und Kollegen sowie dem ghanaischen Minister für Bildung und Wissenschaft und dem deutschen Botschafter führten jedoch für alle Beteiligten zu einer klaren Erkenntnis: Mit dieser Gruppe von Institutionen und Personen können wir das Projekt realisieren. Wir haben ein stabiles Fundament gemeinsamer Überzeugungen und die hohe Professionalität auf allen Seiten wird es erlauben, das neue Institut mit höchsten Qualitätsmaßstäben zu organisieren.

Voller Einsatz war notwendig, um im März 2017 einen schriftlichen Antrag einzureichen und ihn im September 2017 gemeinsam vor einer internationalen Auswahlkommission im Bundesforschungsministerium in Bonn zu vertreten. Gemeinsam mit dem Vizerektor der University of Ghana, Prof. Francis Doodoo, sowie der Direktorin des weltweit renommierten Institute for African Studies, Prof. Dzodzi Tsikata gelang es, unsere Begeisterung über das Projekt und unsere Zuversicht den Gutachtern zu vermitteln.



Am 12. Dezember 2017 unterzeichneten Andreas Mebler und Francis Dodo, Vizekanzler für Forschung, Innovation und Entwicklung an der University of Ghana, den Kooperationsvertrag in Anwesenheit von Bundespräsident Frank-Walter Steinmeier und Ebenezer Oduro Owusu, Vizepräsident der University of Ghana.  
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Alle Projektbeteiligten, die Kolleginnen und Kollegen aus Ghana sowie Ministerium und Projektträger wirkten zusammen, um die noch ausstehenden Formalitäten abzuschließen, sodass die Kooperationsvereinbarung in Accra am 12. Dezember 2017 im Beisein des Bundespräsidenten unterzeichnet wurde.

Am zweiten Standort des Instituts, Dakar, Senegal, hat unser Konsortialpartner, das Deutsche Historische Institut Paris, bereits ein sehr erfolgreiches Programm für jüngere Nachwuchswissenschaftlerinnen und -wissenschaftler etabliert. Hieran kann unser Projekt anschließen. Was ist das besondere Potenzial eines Forschungskollegs für die deutsch-afrikanische Wissenschaftskooperation? Die wichtigste Stärke ist, dass es Wissenschaftlerinnen und Wissenschaftler über Disziplin- und Ländergrenzen hinweg in einen intensiven Austausch bringen kann. Ein Forschungskolleg bietet Freiräume für Forschung und fördert die Kreativität und das Engagement herausragender einzelner Forscherinnen und Forscher. Das neue Institut in Accra soll junge Talente und wichtige Intellektuelle auf dem Kontinent anziehen, denn zweifellos sind in vielen afrikanischen Ländern die Arbeitsbedingungen an Universitäten schwierig. Durch Gruppenformate können Themen von gemeinsamem Interesse aufgegriffen und diskutiert werden. Das neue Institut soll auch die Grenzen zwischen Wissenschaft und Gesellschaft überbrücken. Persönlichkeiten aus Politik und Gesellschaft sollen für eine gewisse Zeit an das Institut eingeladen werden. Die

### Beim Aufbau des Instituts arbeitet Freiburg mit folgenden Partnern zusammen:

- University of Ghana, Accra
- Centre de Recherches sur les Politiques sociales (CREPOS), Dakar, Senegal
- Goethe-Universität Frankfurt a.M., Zentrum für interdisziplinäre Afrikaforschung (ZIAF)
- German Institute of Global and Area Studies Hamburg (GIGA)
- Universität Konstanz
- Deutsches Historisches Institut Paris

Förderung des wissenschaftlichen Nachwuchses ist auf einem Kontinent, in dem der Hochschulsektor weiter massiv ausgebaut werden muss, von entscheidender Bedeutung. Dabei sind Förderformate wichtig, die eine Integration in internationale Netzwerke ermöglichen, aber gleichzeitig die Verbindung zu Heimatländern und Regionen nicht auflösen, sondern stärken.

Die University of Ghana wird nun ihre eigene Vision eines Forschungskollegs ausgestalten und das Zusammenwirken der deutschen und der afrikanischen Partner wird das Institut zu einem lebendigen Ort des Austauschs machen. Wir vom FRIAS werden dabei unsere Erfah-

rungen aus den letzten zehn Jahren in die Entwicklung einspeisen. Für den langfristigen Erfolg des Projektes ist es entscheidend, die neue Einrichtung im nationalen Wissenschaftssystem zu verwurzeln. Hier liegt eine besondere Verantwortung unserer ghanaischen Partner.

Wie geht es weiter? Das Projekt startet offiziell im März 2018. Nach einer Auftaktkonferenz im Herbst 2018 werden in einer ersten Phase ab Anfang 2019 verschiedene interdisziplinäre Fellow-Gruppen für mehrmonatige Aufenthalte in Accra zusammenkommen und zu einem verbindenden Thema arbeiten. Parallel dazu laufen die Vorbereitungen für ein individuelles Fellowshipprogramm, das 2019 ausgeschrieben wird. Der Start der Fellowships ist für September 2020 vorgesehen. Voraussetzung dafür ist eine weitere Entscheidung des Bundesforschungsministeriums über die Förderung für die dann sechsjährige Hauptphase. Schon jetzt laufen Gespräche, weitere Partner in das Vorhaben einzubinden und mit ihnen zusätzliche Aktivitäten am Institut zu realisieren.

Aber auch in Freiburg wird das Projekt neue Entwicklungen anstoßen. Mit dem Rückenwind durch das neue Merian-Institut wird es möglich, in enger Kooperation mit den Afrikawissenschaften an der Universität Basel ein Freiburger Afrika-Zentrum aufzubauen. Ein von der Universität Freiburg finanziertes Sonderprogramm wird es ermöglichen, Wissenschaftlerinnen und Wissenschaftler aus Afrika als Fel-

lows ans FRIAS zu holen. Wichtig ist auch die Unterstützung durch das baden-württembergische Wissenschaftsministerium, das der intensivierte Wissenschaftskooperation mit Afrika eine hohe Bedeutung beimisst.

Die afrikanischen Gesellschaften stehen in den kommenden Jahren vor außerordentlichen Herausforderungen; die Gesellschaften der hoch industrialisierten Länder auch. Wissenschaft bleibt einer der Schlüssel dafür, die gesellschaftliche Entwicklung in einem auf die Menschen hin orientierten Sinne voranzubringen. Unser Vorhaben lebt von der Überzeugung, dass Freiräume für Wissenschaft und eine intensive Kooperation über Disziplin-, Länder- und Kulturgrenzen hinweg eine lohnende Investition sind. Wir freuen uns auf die neue Herausforderung und Zusammenarbeit mit allen Projektpartnerinnen und -partnern in den nächsten Jahren. (cd)



## Four questions addressed to Professor Gordon Crawford



*Professor Gordon Crawford is a Research Professor in Global Development in the Centre for Trust, Peace and Social Relations at Coventry University. He is the newly appointed Academic Director of the Merian IAS Africa, representing the German consortium partners. The second Academic Director will be named by the University of Ghana. Prof. Crawford is also an honorary professor of the University of Freiburg.*

### **FRIAS: From your perspective on the region, why is Ghana a good place for an Institute for Advanced Studies?**

For one, it is the quality of the University of Ghana. It is the foremost public university in the country, with a significant history being established at the end of the colonial period in 1948. It has long been regarded as one of the premier universities on the African continent. It is well-known for the quality of its academics, the range of academic disciplines that it covers, and its superb and very large green campus. Another reason for choosing Ghana

is political stability. Ghana has the distinction of being the first country in Sub-Saharan-Africa to gain its independence in 1957. Currently, it is regarded as a model for democratic progress in Sub-Saharan Africa, making its democratic transition in 1992 and achieving a sustained process of democratic consolidation ever since. Civil and political rights are respected and regular elections held every four years, with three peaceful turnovers of power between the two main political parties. During the period of military regimes, the political environment was characterised by “a culture of silence”. Today, people are no longer afraid to express their opinion, far from it. A third reason is that Ghana is a very easy country to visit and in which to undertake research. There are no major personal security issues. Ghanaians are very hospitable and look after foreign visitors.

### **FRIAS: Given the many difficulties African countries are facing, will societies at large profit from the exchange between African and European academic communities in the humanities and social sciences?**

In terms of the impact on local people's life, it is important to adopt an outreach strategy that ensures that research findings are made relevant to policymakers and to civil society organizations. I am confident that through its Ghanaian partners in particular, the Institute will have constructive engagement and dialogue both with the government of Ghana and its ministries and with Ghana's vibrant civil society, leading to relevant policy reforms.

### **FRIAS: Why should European and German research communities in the humanities in social sciences engage more with Sub-Saharan Africa?**

Africa is a very significant continent. It is the poorest continent globally. As scholars in the humanities and the social sciences, there are many questions to be explored that aim to improve the living conditions of so many people in Africa. There is much research to be undertaken that will gain from the collaboration of African and European researchers, and will contribute to global knowledge production of relevance both to Africa and African societies as well as to the rest of the world.

### **FRIAS: What was your most memorable experience in Ghana?**

I have many memorable experiences, especially instances of the kindness of Ghanaian people. But the first time I went to northern Ghana sticks in my mind. It was at the end of the dry season. Everything was brown, there wasn't a blade of grass to be seen. We went out to a rural village and I thought: How can people survive here? And then it rained. The next day you could see the shoots of green coming up. When I went back a month later, the whole place was transformed. Seeing that transformation, but also being aware of the hardships of rural life in what can be a quite unforgiving climate, was a very memorable experience.

# NEWS

## ◆ SCHOLARS AT RISK: UNIVERSITY OF FREIBURG AND FRIAS RECEIVE FUNDING FOR TWO SCHOLARS FROM THE ALEXANDER VON HUMBOLDT FOUNDATION

FRIAS and the University of Freiburg receive funding to support researchers facing the threat of war or persecution in their homeland. The University has been selected as host institution by the Humboldt Foundation in the third round of the Philipp Schwartz Initiative.

With the financial assistance provided by this important initiative, FRIAS and the university are able to provide academic refuge to two researchers from Turkey and their families for a two-year period. One colleague arrived in August 2017 and has successfully started his work in the medical faculty of the University of Freiburg. The second colleague, however, has so far not been able to take up his fellowship. On 23 July, 2016, the Turkish President Recep Tayyip Erdoğan shut down 15 universities in connection with declaring a state of emergency following the failed coup on July 15, 2017. Both before and after the attempted coup, about 2000 Turkish scholars not only lost their jobs but had and still have to fear prosecutions.

Considering developments not only in Turkey, the relevance of the initiative is clear. In the words of German Foreign Minister Sigmar Gabriel: “Academic freedom is under threat in ever more countries, and researchers are put under pressure, persecuted and silenced. The free-

dom of science and research is vital for modern societies. The Philipp Schwartz Initiative thus sends a clear signal that, at a time when authoritarian ambitions are apparently riding the wave in many places, we do not leave affected researchers to their own devices but offer them a protected space and hence prospects for the future.”

The Philipp Schwartz Initiative was established by the Humboldt Foundation with assistance from Germany's Federal Foreign Office in 2015. The initiative provides universities and research institutions in Germany with the means to host threatened foreign researchers for a period of 24 months on a fully funded research fellowship. It is funded by the Federal Foreign Office, with generous additional support from several private foundations.

## ◆ FREIBURGER HORIZONTE: "DIE POSTMIGRANTISCHE GESELLSCHAFT – DYNAMIKEN ZWISCHEN AKZEPTANZ UND ABWEHR VON DIVERSITÄT"

Im November 2017 sprach Prof. Dr. Naika Foroutan vom Berliner Institut für empirische Integrations- und Migrationsforschung (BIM) über gesellschaftliche Aushandlungsprozesse im postmigrantischen Deutschland. Ihr Vortrag fand im Rahmen der Veranstaltungsreihe Freiburger Horizonte statt, mit der das FRIAS regelmäßig Expertinnen und Experten aus Wissenschaft und Politik einlädt, um gemeinsam mit der Freiburger Öffentlichkeit über gesellschaftliche Problemlagen und Themen von aktueller Relevanz zu diskutieren.

Foroutans Vortrag schloss inhaltlich an das Thema der vorigen Horizonte-Veranstaltung an, in dem die Politikwissenschaftlerin Prof. Dr. Sandra Lavenex über die Entwicklungen in der Asylpolitik der EU informierte. Während Lavenex die administrative Ebene der Thematik fokussierte, lieferte Foroutan empirische Einblicke in die Diskurse und Probleme, die mit den Spezifika einer postmigrantischen Gesellschaft verknüpft sind: "In postmigrantischen Gesellschaften, die politisch anerkannt haben, dass sie ein Einwanderungsland geworden sind, beanspruchen Zuwanderer und ihre Nachkommen Teilhaberechte auf der Basis des Gleichheitsgrundsatzes der Demokratie", so Foroutan. Unter Zuhilfenahme von Erhebungen des BIM und des Bundesministeriums des Innern (BMI) zeigte sie, wie komplex das Themenfeld Migration ist und wie herausfordernd die Kategorienbildung: 22,5% der Einwohner Deutschlands weisen heute einen

Migrationshintergrund auf, wovon wiederum ca. die Hälfte ‚Deutsche‘ sind – die andere Hälfte gelte als ‚Ausländer‘, da sie keinen deutschen Pass besitzen. Jedoch sei fraglich, inwiefern der deutsche Pass im alltäglichen Umgang als Unterscheidungskriterium tatsächlich relevant sei.

Diese statistisch erfasste Diversität stellt sich innerhalb der Gesellschaft unterschiedlich dar. So variiert der Anteil von Menschen mit Migrationshintergrund sowohl zwischen den Alterskohorten als auch zwischen den Bundesländern sehr stark. Im Rückgriff auf die sogenannte Kontakthypothese erklärt Foroutan, dass die Angst vor Überfremdung geografisch negativ mit der tatsächlich registrierten Einwanderung in den Bundesländern korreliert: Im Osten ist der Anteil der Menschen mit Migrationshintergrund am geringsten, die Angst davor jedoch am größten.

Eine andere Herangehensweise versucht indes, den Komplex Migrationshintergrund nicht allein auf die Trägerinnen und Träger äußerlicher Kennzeichen zu beziehen: „Wenn eine herkunftsdeutsche Person eine Person mit Migrationshintergrund heiratet, ist sie persönlich häufig auch sensibilisiert für die zugehörigen Problematiken, weil sie weiß, dass Rassismus auch ihre Kinder betreffen könnte“. Dieser Ansatz versucht empirisch abzubilden, wer in seinem Alltagserleben (bspw. über Familie, Beruf oder Freunde) persönliche Bezüge zu Migrationserfahrungen herstellt. So betrachtet

ergibt sich ein zunehmend diverses Bild der Situation in Deutschland, in dem ca. die Hälfte der Bevölkerung einen persönlichen Bezug zur Thematik hat.

Diese Überlegungen sollen schließlich dabei helfen, die gesamtgesellschaftlichen Diskussionen um das Recht auf Teilhabe von Menschen mit Migrationshintergrund zu verstehen. Sie bewegen sich, so Foroutan, häufig zwischen Abwehr und Akzeptanz. Die Linien, an denen sich die Meinungen im Einzelfall scheiden, verlaufen jedoch nicht zwischen Herkunftsdeutschen und Migranten und auch nicht zwischen arm und reich oder alt und jung. Vielmehr tun sich neue Trennlinien auf, was weiterhin darauf hinweist, dass viele allgemein gängige Kategorienschemata überdacht werden müssen, um die Debatte auf die Höhe der Zeit zu heben und die momentan wahrnehmbare Spaltung zu überwinden.

*Ein Videomitschnitt des Vortrages ist online abrufbar in der FRIAS Mediathek.*

## ◆ HERMANN STAUDINGER LECTURE: FROM CHEMICAL TOPOLOGY TO MOLECULAR MACHINES

It was a great pleasure to welcome Jean-Pierre Sauvage from the Institute of Supramolecular Science and Engineering at the University of Strasbourg as guest and speaker of the 24th Hermann Staudinger Lecture. More than 350 listeners attended his talk on January 9th in the chemistry lecture hall (see cover picture). Following words of welcome by Rector Hans-Jochen Schiewer, Bernhard Breit, Professor of Organic Chemistry at the University of Freiburg and former FRIAS fellow, gave an introduction into the research field in which he emphasized the outstanding achievements of Sauvage and his research team.

In 2016, Jean-Pierre Sauvage, Sir J. Fraser Stoddart and Bernard L. Feringa received the Nobel Prize in Chemistry for their contribution to the design and synthesis of molecular machines. With their work, the awardees demonstrated for the first time that it is possible to build machines on a nanometer scale. Molecular machines consist of a multitude of molecules that can move like a machine through external stimulation, similar to the work of a muscle in a living system.

In 1983, Jean-Pierre Sauvage made his first breakthrough using a simple template based procedure for the

preparation of a molecule featuring two interlinked rings of atoms - a catenane. This procedure has subsequently been applied for the preparation of many interlinked systems including the trefoil knot. In the catenane system, molecular motion can be achieved electrochemically causing rotation of the rings around the template metal center giving rise to molecular motion that is fully reversible. It is this work that he received the 2016 Nobel Prize in Chemistry for, representing a milestone in the preparation of molecular machines.

*A recording of the lecture is available on the FRIAS homepage.*

## ◆ ASSOCIATION OF ALUMNI AND FRIENDS OF THE FREIBURG INSTITUTE FOR ADVANCED STUDIES

Together with the opening of the Merian IAS Africa in Ghana, FRIAS will celebrate its 10-year anniversary in 2018. A great year to start the Association of Alumni and Friends of the Freiburg Institute for Advanced Studies – Alumni Club (Verein der Alumni und Freunde des Freiburg Institute for Advanced Studies e.V.). Following the example of other Institutes of Advanced Studies, the association aims to further enhance the contacts among the steadily growing FRIAS community.

The Alumni Club is chaired by a trio that reflects the diversity of this community: Eva von Contzen joined FRIAS in 2013 as a junior fellow and returned in 2017 as the

principal investigator of the junior researcher group "Lists in Literature and Culture". Helen Pert, responsible for the fellow support until her retirement in December 2017, was a member of the FRIAS administration from the beginning. Hermann Grabert, professor emeritus of theoretical physics at the University of Freiburg, was FRIAS director from 2007 until 2015.

Annual members' meetings will be organized, during which the members' assembly will determine the exact use made of the association's funds. The possibilities are manifold; funding scientific publications and presentations that reach out to the general academic community

and the public, giving extra funding to fellows and guest researchers in unforeseen circumstances (like e.g. Scholars at Risk), and generally supporting the networks that have developed from fellowship stays here at FRIAS.

In summer 2018, the association will organize a kick-off assembly. If you are interested in joining the Alumni Club and thereby helping to further support FRIAS, please contact Britta Küst at [alumniclub@frias.uni-freiburg.de](mailto:alumniclub@frias.uni-freiburg.de).



# EVENTS

## Workshop – Language Comprehension across the Life Span

April 9th – April 10th, 2018

*Organisation: FRIAS Project Group “Language Dynamics Across the Life Span” with JunProf. Adriana Hanulikova (University of Freiburg), Dr. Alice Blumenthal-Dramé (University of Freiburg), Dr. Tonio Ball (Freiburg University Medical Center), Prof. Evelyn Ferstl (University of Freiburg)*

Over the last years, cognitive aging has attracted a great deal of scholarly attention, partly due to the global demographic trend towards aging populations and the economic, medical and social challenges this poses. While cognitive aging research has mostly focused on age-related deficits, it has also been acknowledged that certain cognitive functions might be preserved or even improve as a function of age. A possible candidate for a cognitive ability that might remain largely intact across the life span is language comprehension. Efficient language comprehension is essential for successful social interactions for both young and older adults. The acquisition and maintenance of linguistic skills are, however, strongly modulated by cognitive and perceptual factors. Moreover, linguistic skills and cognitive abilities change over the life span. The aim of this workshop is to explore the dynamics of language comprehension across the life span, starting with adolescents and up to older adults.

## FRIAS Junior Researcher Conference – Polycentric Climate Governance after Paris: Expectations, Challenges and Pathways

April 12th – April 14th, 2018

*Organisation: Dr. Sabine Reinecke (University of Freiburg), Anne-Kathrin Weber (University of Freiburg), Mareike Blum (University of Freiburg), Jonas Schönefeld (Technische Universität Darmstadt, University of East Anglia), Linda Wallbott (Technische Universität Darmstadt)*

With the Paris Agreement, the international community has entered a new era of climate governance. One particularly important aspect is the crucial role that non-state actors will play in driving global climate action, thereby increasingly blurring the line between public and private climate governance. Polycentric climate governance is characterised by network structures, covering multi-stakeholder participation and epistemic expertise, which ideally lead to innovative policy outcomes. However, with more dispersed and dynamic constellations of authority, critical questions arise about the legitimacy and effectiveness of polycentric governance arrangements with non-state actors. The conference aims at gaining a deeper understanding of the extent to which polycentric climate governance can successfully address climate change challenges. The conference is designed in a way to encourage PhD and Post-Doc researchers to proactively engage with prominent senior researchers of their field. The workshop offers various

possibilities for face-to-face interaction and discussions. By offering a diverse set of innovative methods of instruction and exchange, we aim for a conducive learning atmosphere that inspires novel perspectives and long-lasting networks. The workshop is organised in cooperation with the Early Career Investigators’ Network (ECIN) of the INOGOV Network. The official program will be accompanied by exciting side events, including a Science Slam and a guided tour through the city of Freiburg. Bringing together several leading senior scientists and ambitious young researchers, this event is sought to serve as the basis for further research exchange or collaboration. One immediate output will be a policy brief to be published in the INOGOV Policy Brief Series.

## Workshop – Robust Finance

May 16th – May 18th, 2018

*Organisation: FRIAS Project Group „Model Risk“ with Prof. Dr. Patrick Dondl, JunProf. Dr. Philipp Harms, Prof. Dr. Eva Lütkebohmert-Holtz, Prof. Dr. Thorsten Schmidt (all from the University of Freiburg)*

In the aftermath of the recent financial crises, model risk was identified as a main concern of the financial industry. This workshop will bring together researchers working in the areas of financial mathematics, economics, and probability. The goal is to discuss methods that allow treating model risk in a systematic fashion

and that are applicable in practice. A particular focus will be given to robust methods allowing to efficiently capture problems in, e.g., pricing, risk management, and systemic risk in financial markets.

## FRIAS Junior Researcher Conference – Grounding the Space of Reasons. The Question of First Principles in German Idealism and Today

June 14th – June 16th, 2018

*Organisation: JunProf. Dr. Philipp Schwab (University of Freiburg), Lucian Ionel (University of Freiburg), Simon Schüz (University of Tübingen), Maximilian Tegtmeyer (University of Pittsburgh)*

How does reason ground knowledge and how can it guide our practical life? The way Kant’s philosophy has addressed these questions still defines our understanding of reason today. However, as post-Kantian philosophers contended, Kant leaves open how reason itself is grounded. Early German Idealism thus emerges as an inquiry into the first principle of knowledge. But does reason require a foundation at all?

The renaissance that German Idealism has experienced within Anglophone philosophy over the last decades is a testimony to the lively debate regarding the possible autonomy and limits of the space of reasons. While contemporary approaches emphasize the self-deter-

mination of reason and argue that its normativity is irreducible to non-normative grounds, the requirement of an ultimate justification arguably still haunts the conception of reason in question.

The conference “Grounding the Space of Reasons” confronts contemporary conceptions of the immanent normativity of reason with the demand for an ultimate grounding articulated in early German Idealism. The conference thus aims to contribute to a fruitful exchange between historical and contemporary analytical approaches to German Idealism as well as between renowned and emerging scholars of both traditions.

# SOURCES OF INSPIRATION

*This time we asked our fellows from which sources they draw inspiration for their ongoing research.*

## **Local market in Yan'an, Shaanxi Province (China)**

This picture was taken at a local grain market in Yan'an during one of my visits around the country side in Shaanxi Province (central China). I am working with colleagues from Xi'an International Studies University (XISU) on Chinese and German forms of address and person references in everyday interactions. I very much enjoy travelling around the countryside, going to remote places and getting in contact with local people. Market places have a special fascination for me, as they are such lively, colorful sites and ideal places to chat with locals.

*Susanne Günthner, FRIAS Fellow 2017/18*



## **The lecture hall**

Mathematics is a field where creativity and inspiration is a cornerstone of research. The atmosphere at the dignified pathology lecture hall at FRIAS is an ideal place of intensive discussions, where first steps into new research areas are evolving and new ideas are discovered, leading finally to deep mathematical results (which we call theorems).

*Thorsten Schmidt, FRIAS Fellow 2017/18*



## **Jacques Callot's "Les mois. 7. Juillet"**

Many of Callot's etchings are very small, like the one depicted here. Their small size forces us to look closely. At the same time they are fascinatingly worked 'to the inside' and draw the spectator's attention to an perspectively created inner space. They remind me that aesthetic objects that invite for immersion don't necessarily have to be huge, loud or surrounding but can be inconspicuously suggestive. Rather than overwhelming our senses they aim at our imagination.

*Anne Holzmüller, FRIAS Fellow 2017/18*



## **Black Forest hike**

I bet this is a common one around here, but for me it's the forest! I've made huge progress on my book walking around the forest. It is my new favorite place for thinking about philosophy.

*Errol Lord, FRIAS Fellow 2017/18*



(cc) Romary

## **The Parable of the Good Samaritan**

I do not remember how and why this image came to my mind just as I was thinking about my research project: "Anthropology of Taxation". The icon helped me to better re-frame its leading questions: Why should we pay taxes? What kind of reciprocities are involved in paying taxes and in redistributive policies? Is it possible to conceive taxation as a form of gift? To put it another way: are taxation and redistribution a form of gift to strangers? When I pay taxes ... "who is my neighbor?"

*Paolo Silvestri, FRIAS Fellow 2017/18*

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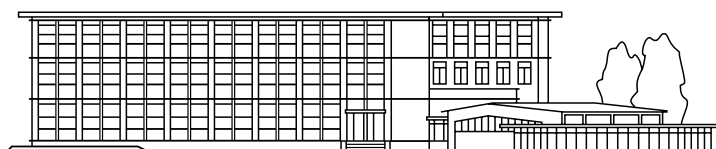
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