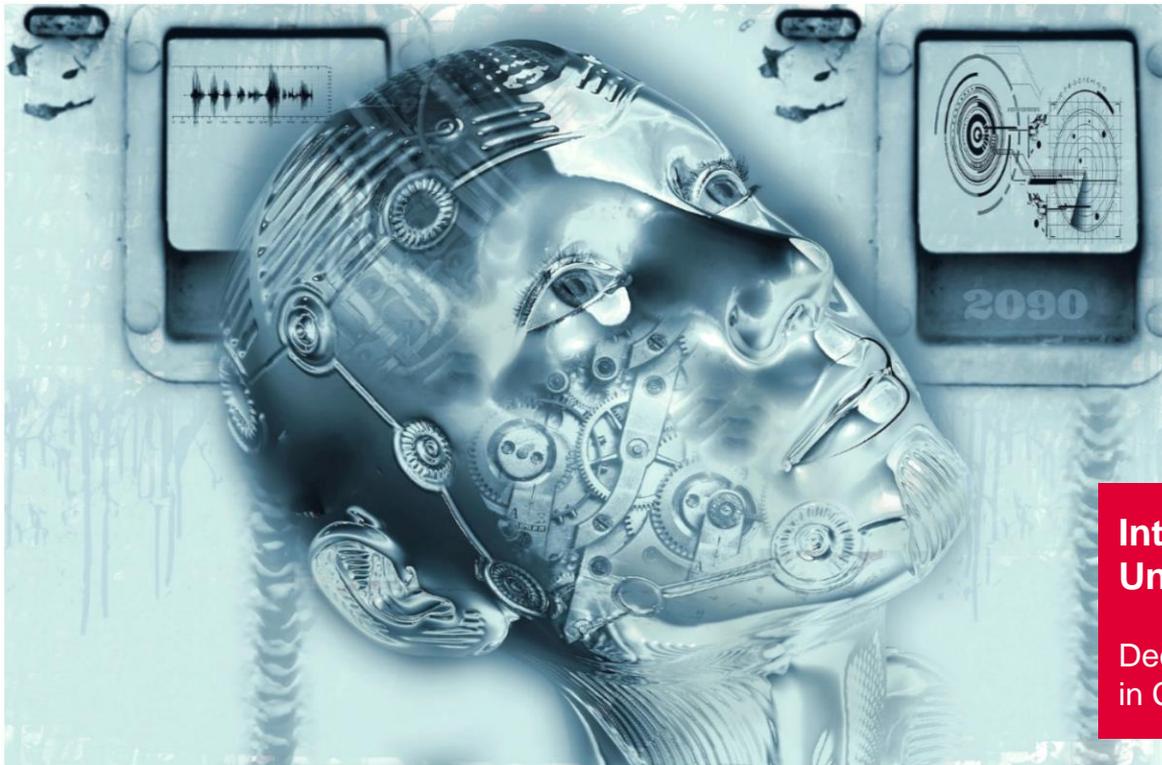


# HOMO technicus/technologicus

*Biotechnology, Health Promotion and  
Ethics of Human Flourishing*



**International Symposium at Coburg  
University of Applied Sciences and Arts**

December 12<sup>th</sup> and 13<sup>th</sup>, 2018  
in Coburg, Germany

# HOMO technicus/technologicus

*Biotechnology, Health Promotion and Ethics of Human Flourishing*

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*Hosting the international interdisciplinary scientific symposium „Homo technicus/technologicus: Biotechnology, Health Promotion and Ethics of Human Flourishing“ in December 2018 is an important occasion for us at University of Applied Sciences and Arts Coburg. The underlying theme for this two-day symposium is finding ways to prudently balance the benefits, burdens and perils of advancing biotechnology for humankind in an ethically and morally informed manner. At this point in time it has become clear that the human race is a species in transition, thereby increasingly experiencing and facing the direct and indirect impact of technological advances that have not only changed important biological and psychological realities of life, but also its social and natural habitat.*

*Our university of applied sciences is dedicated to fostering and cultivating interdisciplinary research and practice, as well as social responsibility and diversity. This mission is manifested in the successful long-term project Coburg Way, which has received funding from the Federal Ministry of Education and Research since 2012. I am therefore particularly proud to be able to host this fascinating symposium in which leading experts from different backgrounds and countries will discuss ways to develop and use technical implements to advance the ways in which our students as individuals and current and future citizens as well as leaders of an ever more global society may flourish.*

## Preamble

Prof. Dr. Christiane Fritze  
*President of Coburg University of Applied  
Sciences and Arts*



Prof. Dr. Christiane Fritze  
*President of Coburg University of Applied Sciences and Arts*

## *In the morning*

- 09:30** Come together
- 10:00** Greeting by university leadership
- 10:10** Prof. Dr. **James Giordano** (Georgetown University, Washington DC):  
*Minding Neuroscience and Technology on the 21st Century World Stage – The Need for Informed, International Neuroethics*
- 10:45** Discussion
- 11:15** Prof. Dr. **John Robert Shook** (University at Buffalo, New York):  
*Cosmopolitan Ethics and Philosophy of Technology*
- 11:45** Prof. Dr. **Kevin T. FitzGerald, S.J.** (Georgetown University, Washington DC):  
*Human Genome Editing: Rapidly Advancing, but Where and to What End?*
- 12:15** Discussion
- 12:45** Lunch Break

## Schedule

Wednesday, December 12th 2018

*Lectures before lunch: Brose Aula (11-U01)*

*Lectures after lunch: Wöhner Audimax 2 (11-U04)*

*Come together and coffee breaks: Blauer Salon (10-021)*

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## *In the afternoon*

- 14:00** Prof. Dr. **Fuschia Sirois** (University of Sheffield):  
*Positive Psychological Perspectives on the Use of Technology for Promoting Human Flourishing*
- 14:30** Prof. Dr. **Jameson K. Hirsch** (East Tennessee State University):  
*Positive Biotechnology: Homo Positivus and Self-Actualization in the Age of Technology*
- 15:00** Discussion
- 15:30** Coffee Break
- 16:00** Prof. **Michael Heinrich** (Coburg University):  
*Design, Technology, Responsibility*
- 16:30** Discussion

## Schedule

Wednesday, December 12th 2018

*Lectures before lunch: Brose Aula (11-U01)*

*Lectures after lunch: Wöhner Audimax 2 (11-U04)*

*Come together and coffee breaks: Blauer Salon (10-021)*

## *In the morning*

- 09:00** Dr. **Apostolos K. Gerontas** (Coburg University):  
*After the End of the Revolution, How Are We Going to Live Without Free Will?*
- 09:30** Dr. **Thomas Kriza** (Coburg University):  
*Challenging Modernity's Concept of a Meaningful Human Existence: How Neurotechnology Fundamentally Confronts our Human Self-Image*
- 10:00** Discussion
- 10:30** Coffee Break
- 11:00** Dr. **Hans-Christoph Aster** (University Hospital Würzburg):  
*Precision Medicine – Evolution or Decadence?*
- 11:30** PD Dr. **Thomas Bohrer** (Hospital Kulmbach):  
*Humanity on Lost Ground? Homo Patiens versus Homo Technicus in Industrialized Medicine of the 21st Century*
- 12:00** Discussion

## Schedule

Thursday, December 13th 2018

*Lectures : Brose Aula (11-U01)  
All coffee breaks: Blauer Salon (10-021)*

# HOMO *technicus/technologicus*

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## *In the afternoon*

- 12:30**     **Prof. Dr. Niko Kohls** (Coburg University):  
*Health Promotion Interventions as Socio-Technological Tools? Chances and Perils!*
- 13:00**     Discussion
- 13:15**     Lunch Break
- 14:30**     **Prof. Dr. Harald A. Mieg** (Humboldt Universität zu Berlin):  
*Research-Based Learning: Goals, Challenges, Perspectives*
- 15:00**     **Adrian Vogt** (Kiel University):  
*Do You Speak Humanities? Interdisciplinary Research at the ZKE: A Physicist Point of View*
- 15:30**     Discussion
- 16:00**     Coffee Break
- 16:30**     **Final Discussion**
- 17:30**     End of the Symposium

## Schedule

Thursday, December 13th 2018

*Lectures : Brose Aula (11-U01)*

*All coffee breaks: Blauer Salon (10-021)*

## ***Minding Neuroscience and Technology on the 21st Century World Stage – The Need for Informed, International Neuroethics***

Developments in neuroscience contribute to the evolution of neurotechnology, and with this evolution come new techniques, knowledge, and capabilities, which in turn affect the nature of humanity. It may be that we are not on a course toward some construct of the post-human, but instead toward a transhumanism that reveals the human-in-transition, defined by and dependent on technology and a technically enabled worldview.

We are a species in evolution, and our current trajectory and future state might be regarded as Homo sapiens technicus – that is, the human whose ways of knowing and being are evermore generated by and reliant on technology – and thus we are on a path of both far-reaching possibility and potentially profound problems. Therefore, we must take our self-proclaimed identity of Homo sapiens meaningfully, and our assumed iteration of technicus responsibly, and thus imbue tekne (tools and their use) with logos: rational and prudent insight, reflection and judgement. In this lecture, renowned neuroscientist and neuroethicist Prof. Dr. James Giordano of Georgetown University Medical Center, Washington, DC, addresses the iterative, transitional process of Homo sapiens technologicus; and discusses how increasingly international enterprises in brain science, and the pull of global market and sociopolitical forces exert influence upon the scope and extent of neurotechnological research, development, and utilization.

Prof. Giordano posits that neuroethics must be a work in progress, dedicated to pragmatically assessing which current ethical principles and practices are viable, and which require revision, should be supplanted or should be replaced. Giordano poses that the challenge – and opportunity – is that to remain current and effective neuroethics must enable multi-cultural views and voices – if we are to genuinely exercise prudent address and globally-relevant guidance of the powerful tools and techniques we create.

### **Abstract**

**Prof. Dr. James Giordano**  
*(Georgetown University, Washington DC)*

**Wed, Dec 12<sup>th</sup> 2018, 10:10**  
*Brose Aula (11-U01)*

## ***Cosmopolitan Ethics and Philosophy of Technology***

Philosophy of Technology is fragmentary until this question is addressed and well-answered: What is the fundamental basis for the relationship between humanity and technology? The Duality approach is most common, which defines them separately and considers only contingent relations between humanity and technology. The Servility approach defines the nature of technology in terms of its creation and usage by humans, but it would not comprehend humanity as essentially defined by technology.

Another approach, defended in this paper, is the Unity approach: the nature of humanity and the nature of technology must be essentially defined in terms of the other. This Unity approach best explains why humans are able to understand what technology is, and what technologies do to both our habitats and to ourselves over time.

Fundamentally, the human being, qua fully human, is composed of nothing but capacities for art/techne practices. Dewey's naturalistic pragmatism and Cassirer's theory of symbolic forms have shown the way. The broadest sense of techne is intended here, to cover all the invented praxes from tool-use and performance to myth and language that are needed for creating human individuals and persons. We persons are our technes – the Being of being human is praxiological and technological to the core. Technologies are not external to ourselves.

### **Abstract**

**Prof. Dr. John Robert Shook**  
*(University at Buffalo, New York)*

*Wed, Dec 12<sup>th</sup> 2018, 11:15*  
*Brose Aula (11-U01)*

The question, “What happens if we get too dependent or too extricated with our technologies?” is not anthropologically informed. Anthropos is technos. A cosmopolitan ethics is unable to comprehensively deal with the ethics of technology without this philosophical techno-anthropology.

## ***Human Genome Editing: Rapidly Advancing, but Where and to What End?***

We live in an age of amazing advances in biotechnology, including the ability to change our own DNA. With this power to edit our own genes comes the enormous responsibility to determine if, when, how, and why, we should, or should not, employ this technology. Will our goal be mere technical development, or we will together discern how this advance may best be guided to serve societal goals?

This presentation will address this rapidly developing genome editing technology, and our shared decision-making responsibility, from the perspective of both national and international policies that could foster good genomic healthcare around the world, especially for those who are the most vulnerable and most in need.

### **Abstract**

Prof. Dr. Kevin T. FitzGerald, S.J.  
*(Georgetown University, Washington DC)*

**Wed, Dec 12<sup>th</sup> 2018, 11:45**  
*Brose Aula (11-U01)*

## ***Positive Psychological Perspectives on the Use of Technology for Promoting Human Flourishing***

Promoting human flourishing and optimising human functioning is a central goal of positive psychological approaches to health and well-being. Broadly, this approach highlights building character strengths as a proactive means to address the challenges to health and well-being that are encountered in daily life, and thus help people lead healthy and long lives. Yet rapid developments in technology have provided the means for people to scaffold their efforts (and perhaps their will) towards reaching their health-promotion goals by packaging the principles of psychological science into accessible apps, devices, and other technological agents. Ostensibly, such advances have the best interests of the “user” in mind as they aim to help people improve their lives.

But can technology be used to enable people to be their best self? Will technological tools simply become crutches to support human weaknesses without providing the essential insights known to not just facilitate change, but also dynamically alter the way people respond to and address their weaknesses when seeking to enhance their health and well-being? Clarifying what is meant by a “best self” is key for answering these questions, as is a careful consideration of the potential pathways in the co-evolution of humans and technology. If technology becomes simply a substitute for developing true character strengths, then opportunities for the promotion of human flourishing and optimising human functioning may be lost.

### **Abstract**

Prof. Dr. Fuschia Sirois

*(University of Sheffield)*

Wed, Dec 12<sup>th</sup> 2018, 14:00

Wöhner Audimax 2 (11-U04)

Using examples from how people respond to challenges to physical and mental health, this talk will highlight possible ways to navigate these important issues and realise the promise of becoming *homo technologicus*.

## ***Positive Biotechnology: Homo Positivus and Self-Actualization in the Age of Technology***

With the rise of modern humanism and its psychological progeny, humanistic psychology, an emphasis on self-actualization has been de rigueur across many fields of scientific exploration. In the last several decades, Positive Psychology, with its focus on eudamonia, or the factors contributing to a meaningful and fulfilling life, has assumed responsibility for propagating this line of thought. Indeed, it might be argued that positive psychology, as a modern philosophy of human aspiration, has permeated a broader range of techno-scientific pursuits than similar, past ideological stances, spawning a sub-culture of positive, yet sometimes anti-positivistic, endeavors.

With cult-like status, positive psychological principles have been applied toward exploring mental (e.g., positive suicidology; positive psychiatry) and physical health (e.g., positive health psychology), understanding the brain (e.g., positive neuropsychology), and enhancing the outcome quality of human-technology interactions (e.g., positive computing; positive technology). Yet, criticisms of the evolution of homo positivus abound; for example, a singular focus on positive emotionality, a componential rather than wholistic perspective, a positivist-scientism emphasis, and adherence to Eurocentric cultural perspectives, are among the issues debated. Possibilities available to humankind. This warrants the question, as we move toward greater integration of man and machine.

Can, and should, the growth-focused and resiliency-promoting tenets of positive psychology be applied to biotechnology, or will our Übermensch strivings have unintended consequences, such as biotechnological enhancements that allow transcendence of the existential concerns defining our humanity? A post-modern “Positive Biotechnology” paradigm is proposed, which integrates the evolving perspectives of Positive Psychology 2.0 and the rapidly-emerging transhuman biotechnological possibilities available to humankind.

### **Abstract**

Prof. Dr. Jameson K. Hirsch  
*(East Tennessee State University)*

*Wed, Dec 12<sup>th</sup> 2018, 14:30*  
*Wöhner Audimax 2 (11-U04)*

## ***Design, Technology, Responsibility***

Aesthetic sensation and the associated interpretations of meaning permeate every area of our outer and inner life. Aesthetics – in the sense of "effect and interpretation of sensory perception" – is thus one of the main constructors of a meaningfully structured subjective world experience that is perceived as extended in time. Object and interior design – from product design to architecture, from graphics to scenography, from fashion to the visual arts – interact intensively with these aesthetic mechanisms. Design therefore bears great responsibility within the constellation of human living spaces, be they public spaces, social spaces, living spaces, work or recovery spaces, with all their implications for social coherence. The often unquestioned premises of design are often the same as those that paradigmatically accompany technological development.

The promises of salvation which have been cherished for centuries and which are linked to the development of technology and habitat design have partly been fulfilled when we look at global health and life expectancy, for example. The freedom to design one's life aesthetically has also increased considerably, although design in terms of lifestyle is usually linked to a high level of consumption. At the same time, however, we are also experiencing how a high problem potential becomes visible in many areas of technological development and aestheticised consumer culture. What role does design play in terms of technology development, and what potential does it have in the health and health promotion sector?

### **Abstract**

Prof. Michael Heinrich

*(Coburg University)*

*Wed, Dec 12<sup>th</sup> 2018, 16:00*

*Wöhner Audimax 2 (11-U04)*

## ***After the End of the Revolution, How Are We Going to Live Without Free Will?***

One of the easiest ways to define the species Homo sapiens is through its inherent capacity to transform its habitats to suit its needs. Progressively, with steps forward and steps backward, but always with a direction, the human apes have essentially rewritten the code of the whole planet, transforming the remaining pockets of non-technical wildness of the Earth into protected gardens, and “wildlife” parks. Still, and even so, humans were not able to rewrite their own most basic code: their genetic heritage was not to be selected and determined a great part of their strengths, weaknesses, preferences, and (essential to the survival of the species) fears and lusts. To express this collection of hidden variables and algorithms, a great part of humanity (albeit not the whole) created an umbrella term: the “free will” of the human, a cornerstone of religious, political and ethical systems at least from the Bronze Age on.

While genetics is deciphering the code of our decision mechanisms and character, and the information technologies are steadily producing more and more efficient algorithms predicting the human behavior (and more ways to hack the decision processes), the concept of the “free will” is becoming more and more difficult to uphold and defend, and several of the human systems of the last five thousand years are losing their cornerstone. This paper is investigating possible aftermaths of the loss of “free will” over politics, economics and ethics.

### **Abstract**

Dr. Apostolos K. Gerontas

*(Coburg University)*

**Thur, Dec 13<sup>th</sup> 2018, 09:00**

*Brose Aula (11-U01)*

## ***Challenging Modernity's Concept of a Meaningful Human Existence: How Neurotechnology Fundamentally Confronts our Human Self-Image***

Modern technology's ever-growing reach promises to expand into the innermost spheres of the human mind, which thus entirely become objects of technological modification and enhancement. The applications of neurotechnology raise important ethical, political, social and legal questions and call for well-founded neuroethics. Neuroethics now not only has to face questions concerning the goals and limitations of neurotechnical innovations, but also the pressing necessity for a fundamental revision of our human self-image. Neurotechnology raises some striking questions about who we are when we apply modern technology to the innermost layers of our personality: What does it mean to be human in a world primarily conceived as a playground for technology – particularly when our innermost mental spheres become the playground?

There is a major shift that becomes especially visible in the philosophical question of the meaning of life: Our predominant human self-image in modernity is the notion that we face a world in itself meaningless, but technologically perfectible, in which we ourselves must determine our goals and ways of life. This ontological differentiation between a meaningless world and a human core emanating existential meaningfulness is now fundamentally challenged: Must we perceive ourselves entirely as part of a meaningless nature, open to be reshaped through (neuro-)technology? Do we have to abandon the key idea of humanism, the notion of a special human dignity, understood by an ontological opposition to non-human nature? Or can we somehow conceive the special value of human life in intellectual harmony with its limitless technological reshaping?

### **Abstract**

Dr. Thomas Kriza

*(Coburg University)*

*Thur, Dec 13<sup>th</sup> 2018, 09:30*

*Brose Aula (11-U01)*

## ***Precision Medicine – Evolution or Decadence?***

What is it that defines us as human beings? Can we answer this question about one's own species as humans? We live in a preemptive society. The advances in genetic engineering, neuroscience, computer science and laboratory techniques enable the generation and processing of ever larger amounts of data. While companies have been collecting data for a long time in order to understand the desires of consumers even before they become aware of them, the approach is becoming more and more of a reality in medicine as well. Proteomics, Radiomics and Genomics analyze and divide the body into its smallest components and make predictive statements about the future course of life. The smaller the scale of our measuring methods, the more deviations from the "norm" we will be able to detect.

The question that needs to be answered is: When do we call something pathologic? The relevance of this question is getting more and more important, since the tools that allow individuals to "standardize" are no longer unrealistic. Recent studies, as an example, are publishing on the gene drive technique, which makes it possible to carry out genetic procedures in the germ line. With the help of neural networks, gene sequencing reveals more and more genes and their functions. In neuroscience, algorithms are developed that may detect deviations in brain activity and then, to improve the individual performance and mood, reset specific areas of the brain with targeted stimulation each time deviations are detected.

### **Abstract**

**Dr. Hans-Christoph Aster**  
*(University Hospital Würzburg)*

**Thur, Dec 13<sup>th</sup> 2018, 11:00**  
*Brose Aula (11-U01)*

## **Humanity on Lost Ground? Homo Patiens versus Homo Technicus in Industrialized Medicine of the 21st Century**

Humanity is the basis of medical practice and is required in human medical education. A purely scientific training of doctors today disregards the elementary and necessary philosophical question in medicine concerning humanity. Medical and philosophical thinking belong together in this question, they cannot be separated from one another in terms of scientific theory, and so actually fully do justice to the unique significance of medicine. Every patient is characterized by its suffering, modern medicine promises to remedy this, e.g. through the concept of transhumanism. The mechanization and industrialization of medicine further can lead to a suppression of homo patiens in many ways today: through misleading assignment of a function (e.g. the patient as a case), the negation of weakness and suffering (e.g. through a purely dualistic thinking) and the resulting dissonance of action with consecutive self-estrangement (e.g. doctor as technician and patient as client).

In contrast, humanity is in fact always generated by the homo (without all possible characteristics), it is already presupposed when humans deal with each other culturally (not only physically or biologically). Techniques, mechanization, digitalisation and AI only have additive functions, which is of critical importance and concern for understanding. Humanity in medicine thus represents a multi-dimensional and very complex dynamic term, which raises questions, stimulates systematic reflection, enables a public discourse and ultimately invites again and again to positive action: each homo patiens not only wants to be treated alone technically, but also be perceived as an individual human being.

### **Abstract**

PD Dr. Thomas Bohrer

*(Hospital Kulmbach)*

*Thur, Dec 13<sup>th</sup> 2018, 11:30*

*Brose Aula (11-U01)*

## ***Health Promotion Interventions as Socio-Technological Tools? Chances and Perils!***

Health promotion strategies and associated salutogenetic interventions operating both on a behavioral and a setting level have been globally identified as important approaches for fostering health, well-being and quality of life in defined clinical and nonclinical populations. Health promotion strategies are conceptualized on the basis of a bio-psycho-social model and respective interventions such as mindfulness meditation based programs are increasingly not only employed as accompanying supportive interventions of medical treatment regimes and salutogenetic interventions but also utilized in educational and organizational contexts for changing individual and organizational behavior.

As such, they are supposed to be explicitly implemented for improving variables such as ethical decision-making, work performance and as a tool for dealing with diversity and inclusion issues, and correspondingly they might be functionally considered as “social technologies”. This contribution will address implicit and explicit perils and chances associated with this development, thereby focusing on empirical findings related to using mindfulness for diversity and inclusion issues. Selected research findings will thereby be discussed and critically reflected.

### **Abstract**

Prof. Dr. Niko Kohls  
*(Coburg University)*

*Thur, Dec 13<sup>th</sup> 2018, 12:30*  
*Brose Aula (11-U01)*

## **Research-Based Learning: Goals, Challenges, Perspectives**

My presentation will provide a systematic overview of theories on and experiences with research-based learning (German: Forschendes Lernen) in institutions of higher education. Research-based learning and, in particular, undergraduate research have become a major consideration among universities in the United States and in research universities around the world. This expansion is due to two reasons: (1) undergraduate research provides a serious introduction to science, now considered a criterion of the quality of bachelor programs in the United States; (2) research-based learning can be considered a prerequisite for highly professionalized work. In his university reform plans of the early 19th century, Wilhelm von Humboldt introduced research-based learning as the core principle of the modern research university in Germany, as well as worldwide. Research-based learning was re-discovered in the German university reform initiatives of the 1960s. Since then, research-based learning has been applied in teachers' education in German universities. My presentation will summarise and discuss the findings of national study on research-based learning (2014 -2018, in the context of the Qualitätspakt Lehre).

Reference: Mieg, H. A., & Lehmann, J. (Hrsg.). (2017). Forschendes Lernen: Wie die Lehre in Universität und Fachhochschule erneuert werden kann. Frankfurt/Main: Campus. English version: Mieg, H.A. (in press). Inquiry-Based Learning – Undergraduate Research: The German Multidisciplinary Experience. Dordrecht: Springer.

### **Abstract**

Prof. Dr. Harald A. Mieg  
*(Humboldt-Universität zu Berlin)*

*Thur, Dec 13<sup>th</sup> 2018, 14:30*  
*Brose Aula (11-U01)*

## ***Do You Speak Humanities? Interdisciplinary Research at the ZKE: A Physicist Point of View***

The Humboldtian idea of university as an institution of universal rather than special know-how and research is often cited by both researchers and politicians. Apart from organizational problems and the contradicting influence of third party financing demanding more applicable research foci, the main challenge is to find a common ground of understanding.

The Center of Constructive Educational Research (Zentrum für Konstruktive Erziehungswissenschaft - ZKE) not only offers students to learn about and experience interdisciplinarity but also has a record of 40 years of ongoing interdisciplinary research. With members of several professions such as medicine, physics, informatics, oceanography and various branches of humanities, the ZKE is able to discuss problems from multiple points of view.

This presentation aims to give an insight of how the ZKE profits from its interdisciplinary structure by the example of two ongoing topics, the question of how to use and justify stochastics and probability theory in humanities and how to define guidelines for research integrity. As the speaker himself is a trained physicist, we will end on how science could profit from interdisciplinarity between science and humanities in order to reflect the inherent conditions of scientific research.

**Abstract**  
Adrian Vogt  
*(Kiel University)*

**Thur, Dec 13<sup>th</sup> 2018, 15:00**  
*Brose Aula (11-U01)*

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*Prof. Dr. James Giordano*