

grow.build.repeat. Symposium on sustainable construction.

03 December 2020 / 18:00 - 20:30 / Keynote by Mitchell Joachim

04 December 2020 / 09:30 - 18:00

Professorship of Sustainable Construction
KIT Karlsruhe Institute of Technology
Egon-Eiermann Lecture Hall (HS 16)
Englerstr. 7, Building 20.40

Speakers

Prof. Dr. Hanaa Dahy

Dr.-Ing. Arch. | University of Stuttgart | Director of BioMat Department (Bio-based Materials and Materials Cycles in Architecture) at Institute for Building Structures and Structural Design (ITKE)

Prof. Dr. Hanaa Dahy, born in Cairo, is a registered architect in Germany and in Egypt. After earning her PHD with excellence at the University of Stuttgart in 2014, Dahy established her (BioMat) department "Biomaterials and Material Cycles in Architecture" since 2016 at ITKE (Institute for Building Structures and Structural Design) in the Faculty of Architecture and Urban Planning at the University of Stuttgart.

She owns european and international patents, won diverse international prizes, leads multiple industrial projects and is a founding member of ArchIDA (Stuttgart Research Center for Architecture: Integrative Design and Adaptive Building) and is a PI (Principal Investigator) of the DFG- German federal funded Cluster of Excellence IntCDC: "Integrative Computational Design and Construction for Architecture".

Title of lecture: Biomaterials and Automation: New Era for Future Architecture

Diana Drewes

Haute Innovation – Future Agency for Material and Technology | Berlin

Diana Drewes has been working as a materials researcher and materials developer at the future agency HAUTE INNOVATION in Berlin. Her thematic main focus is the close linking of technology and biology, where the most far-reaching innovations are expected in the next few years. She has already developed several materials, some of which are based on fungal mycelium, completely free of chemicals and 100% degradable.

In her lectures she is presenting the latest material innovations on the basis of natural resources and explaining production processes by exploiting biological growth processes. Diana Drewes is co-author of the recently by Birkhauser in Switzerland published book "Materials in Progress".

Title of lecture: Mycelium based Material Innovation

Prof. Dirk E. Hebel

M. Arch. | KIT Karlsruhe | Professorship Sustainable Construction | Dean of the Department of Architecture

Prof. Dirk E. Hebel is professor of Sustainable Construction and the Dean of the Department of Architecture at the Karlsruhe Institute of Technology, KIT. He is also a Principal Investigator at the Future Cities Laboratory SEC Singapore. Prior to that, he was assistant professor of Architecture and

Construction at ETH Zürich, Switzerland. He was also the founding scientific director of the Ethiopian Institute of Architecture, Building Construction and City Development in Addis Ababa, Ethiopia. He was as well guest professor at Syracuse University, guest lecturer at Princeton University, and Hans and Roger Strauch visiting critic at Cornell University.

He is the author of numerous book publications, lately Addis Ababa: A Manifesto on African Progress (2018, Ruby Press, with Felix Heisel, Marta Wisniewska and Sophie Nash), Cultivated Building Materials (2017, Birkhäuser, with Felix Heisel) and Building from Waste: Recovered Materials in Architecture and Construction (2014, Birkhäuser, with Marta H. Wisniewska and Felix Heisel).

Title of lecture: Thematic introduction

Natascha Hempel

Dipl.-Ing., M.A. Freelancer for Thoma Holz GmbH

Natascha Hempel studied architecture at the University of Applied Sciences in Bielefeld, Department Minden. In 2006 she completed a master's degree in Architecture Media Management at the Bochum University of Applied Sciences. Between 2006 and 2014 she worked in press and public relations for various large German architectural firms. From 2008 to 2011 she was a research assistant at the Jade University of Applied Sciences Oldenburg with a focus on architectural mediation and communication at the Faculty of Architecture. In 2014 she started her own office "Architecture and Communication".

Her focus is particularly on the influence of the built environment, which no one can escape, and its effects on residents and users. In particular, she focuses on the topics of healthy living, energy independence and ecological sustainability. With her many years of experience in the field of architectural communication, she has been communicating these issues for the company Thoma Holz GmbH since 2017, primarily to architects and people interested in building.

Title of lecture: Bauen mit Massivholz nach Cradle to Cradle Prinzipien (*Building with solid wood according to Cradle to Cradle principles*)

Dr. Alireza Javadian

M. Eng., M. BA., PhD, ETH Zürich | KIT Karlsruhe | Professorship Sustainable Construction

Alireza Javadian is a researcher at the Professorship Sustainable Construction of KIT Karlsruhe. Before he was a postdoctoral researcher at the Alternative Construction Material Group at the Future Cities Laboratory Singapore, a collaboration of the ETH Zurich and the National Research Foundation Singapore. His PhD research focused on alternative composite fiber materials as reinforcement systems in concrete applications.

He was the recipient of a Singapore A*STAR (Agency for Science, Technology and Research) scholarship (2007) to pursue his Master in Engineering at Nanyang Technological University NTU and conduct research on 'Effective High Temperature and Structural Reinforced Concrete Applications'. After his Master at NTU, he joined the National University of Singapore as a research assistant.

Lately, he won the SAWIRIS SCHOLARSHIP Grant of ETH Zürich, a Swiss KTI project fund, and an ZUMTOBEL GROUP Award together with the bamboo research team in Singapore and Zürich.

Title of lecture: High-Performance Bamboo

Mitchell Joachim

Ph.D., Assoc. AIA | Associate Professor of Practice, NYU | Co-Founder, Terreform ONE

He is the Co-Founder of Terreform ONE and an Associate Professor of Practice at NYU. Formerly, he was an architect at the offices of Frank Gehry and I.M. Pei. He has been awarded a Fulbright Scholarship and fellowships with TED, Moshe Safdie, and Martin Society for Sustainability, MIT. He was chosen by Wired magazine for "The Smart List" and selected by Rolling Stone for "The 100 People Who Are Changing America".

Mitchell won many honours including; ARCHITECT R+D Award, AIA New York Urban Design Merit Award, 1st Place International Architecture Award, Victor Papanek Social Design Award, Zumtobel Group Award for Sustainability, History Channel Infiniti Award for City of the Future, and Time magazine's Best Invention with MIT Smart Cities Car. He's featured as "The NOW 99" in Dwell magazine and "50 Under 50 Innovators of the 21st Century" by Images Publishers. He co-authored three books, "XXL-XS: New Directions in Ecological Design", "Super Cells: Building with Biology" and "Global Design: Elsewhere Envisioned". His design work has been exhibited at MoMA and the Venice Biennale.

He earned: PhD at Massachusetts Institute of Technology, MAUD Harvard University, MArch Columbia University.

Title of lecture: Design Against Extinction – From biotech architecture to resilient cities

Prof. Dr. Henk Jonkers

Prof. PhD, Doctorate (M.Sc.) | Delft University of Technology, Faculty of Civil Engineering and Geosciences, Department of Materials & Environment, Microlab | Associate Professor

Prof. Dr. Henk Jonkers received his PhD in marine microbiology from the University of Groningen in 1999 and worked as a research associate at the Max Planck Institute for Marine Microbiology in Bremen until 2006. Since then he has been teaching as Associate Professor in the Sustainability Group in the Materials & Environment Department at the CEG Faculty of Delft University of Technology.

His research focuses the interactions between building materials/constructions and the living environment as well as the impact on functional and environmental performance over the entire life cycle. Research on bio-based high-performance building materials such as self-healing concrete and the development of building materials and structures with added environmental benefits through the integration of vegetation ecosystem functions are further key areas of his work.

Title of lecture: Concrete solutions for liveable cities

Andrea Klinge

Dipl.-Ing. | ZRS Architekten | Head of Research

Andrea Klinge, Dipl.-Ing. Architecture, M.Sc. Architecture, Energy & Sustainability, studied at the Technical University Berlin and London Metropolitan University and specialised in sustainable architecture.

Having previously worked in different architectural practices in London and Rome, Andrea joined ZRS Architekten Berlin in 2013 where she established the research department, leading the EU-research projects RE⁴ and [H]house. Her research focuses on the use of natural building materials in light of

circular construction and an improved indoor environment quality and received a number of prizes such as the Hans Sauer Award 2020 for circularity and a recognition at the Deutscher Holzbau Preis.

Due to her background as carpenter, Andrea works also practically to bring research results directly into application. She has implemented several small-scale projects constructed out of timber, earth or bamboo with students from different universities. In addition, she is a lecturer and is part of the classification committee for the creation of sample EPD's for earth building materials.

Title of lecture: Reuse statt Recycling - Multitalent Holz (*Reuse instead of recycling - wood as a multi-talent*)

Prof. Dr. Marie-Pierre Laborie

Prof. PhD | University of Freiburg | Chair of Forest Biomaterials

Prof. Dr. Marie-Pierre Laborie received her doctorate in 2002 in the field of wood science and forest products at Virginia Polytechnic and State University, USA. In 2008 she habilitated in materials and process engineering at the Grenoble Institute of Technology, France.

Prof. Dr. Marie-Pierre Laborie's basic and applied research aims to a better understanding of the structure and properties of natural materials such as wood and to transforming forest resources into improved wood-based products and innovative biomaterials. In particular, lignin, cellulose and other natural polymers are used to develop new biobased materials and composites with tailor-made performance.

In her laboratory at the University of Freiburg, her team has recently developed lignin-based adhesive systems and tannin-based foams.

Title of lecture: Lignin and Tannin-based Materials as renewable Building Materials

Martin Rauch

Mag. Art. | Founder & Managing Director Lehm Ton Erde Baukunst GmbH

Martin Rauch attended the technical school for ceramics and kiln construction in Stoob (Burgenland, Austria) from 1974-78 and the University of Applied Arts in Vienna from 1978-1983. Since 1990 he has planned, conceived and realised more than one hundred public and private rammed earth building projects on an international level. In 1999 he founded the company Lehm Ton Erde Baukunst GmbH; www.lehmtonerde.at.

In over three decades of theoretical and practical research, Martin Rauch has succeeded in significantly developing traditional rammed earth techniques and integrating them into modern architecture. He has received various awards, including the Holcim Award - Morocco in 2011 and the Reddot Design Award in 2012.

Since 2010, he has been an honorary professor of the UNESCO chair "Earthen architecture, building cultures and sustainable development". Numerous publications including "Upscaling Earth - Material, Process, Catalyst" (2019) and "Gebaute Erde - Gestalten & Konstruieren mit Stampflehm" (2015) document his work.

Title of lecture: Stampflehm – Baustoff der Zukunft (*Rammed earth - building material of the future*)

Prof. Eike Roswag-Klinge

Dipl.-Ing. Architekt BDA | ZRS Architekten | Initiator and director

Prof. Eike Roswag-Klinge is one of the initiators and directors of ZRS Architekten Ingenieure Berlin und the Chair of Natural Building Lab, Technische Universität Berlin. In his networks he is since 20 years researching on, teaching/learning, designing and building climate and resource adaptive, human architecture in different climate zones. The projects range from schools out of earth and bamboo in the global south, heritage rehabilitation, to housing, production buildings and schools out of timber, earth and natural fibre insulation in Europe.

His research is focusing on climate and cultural adaptive architecture and low-tech building systems.

The work he is related with got awarded with the Aga Khan Award 2007, KAIROS Europäischer Kulturpreis 2015, Holcim Award 2011, Gold in Asia Pacific and others. www.nbl.berlin, www.zrs.berlin

Title of lecture: Architecture from Nature – Lwo-Tech Building with Earth, Bamboo and Timber

Dr. Michael Sailer

Dipl. Holzwirt | Scientific Director, Xylotrade B.V. | Senior researcher, Saxion University of Applied Sciences

Dr. Michael Sailer is a biologist and scientific director of the company Xylotrade. Since 1996 he is involved in developments of coatings of biological origin as part of his doctorate. The aim of this research was to extend the service life of wood for outdoor applications using an environmentally friendly natural oil treatment.

During this research, an environmentally friendly wood treatment was developed that is based entirely on natural substances and biological processes and uses a specific fungus to protect the wood.

In early 2016, Xyhlo Biofinish was ready for the market. Timber for the facade cladding of the first project (the health center "Da Costa" in Putten, Netherlands) was impregnated with linseed oil and treated with Xyhlo Biofinish. In the meantime, more than 30 projects have been completed, including the participation in the project "De Loskade in Groningen", in which the concept of "circular living products" is tested on the basis of reusable building components.

Title of lecture: Functional surface treatments of building materials with the fungus Aureobasidium

Werner Schmidt

Mag. Arch. | Atelier Werner Schmidt

Werner Schmidt is one of the most interesting contemporary swiss architects. After graduating from the University of Applied Arts in Vienna, he founded his own office in Graubünden. After realizing some unconventional projects, he gains international fame as an architect in the 2000s thanks to some convincing buildings made of straw bales in Switzerland, Germany and South Tyrol.

Werner Schmidt stands for an architecture with alternative building techniques and natural materials. When planning his buildings, he always keeps the impact on the environment in mind, thus creating sustainable living spaces with a high quality of life.

Title of lecture: Vielfalt Strohballenkonstruktionen (Variety of straw bale constructions)