

**rca**  **2018**



**research culture in architecture × international  
conference on cross-disciplinary collaboration**



**Program**

**Booklet**

**27–28 September**

# Program

# Thursday

**09:00**      **Registration and Coffee**

**10:00**      **Welcome**

**Arnd Poetzsch-Heffter,**  
Vice President for Research, Technology and Innovation, TUK  
**Johannes Modersohn,**  
Dean of Faculty, fatuk

**10:15**      **Michael Hensel, TU Wien:  
Researching Research Cultures  
in Architecture**

Chair: Stephan Birk, fatuk

**11:00**      **Coffee Break**

**11:30**      **Parallel Paper Sessions  
A1 Practice and Research**

Chair: Marco Zünd, fatuk

**Tomas Ooms:**  
Public Debate: Public Interior: Circular Economy: Forms of Exchange:  
Approaching the Reconversion of an Iconic 1966 Office Tower in Brussels  
**Charlott Greub:**  
Making Architecture Public - The Architecture Exhibition - an Environment  
for a Radical Redesign of the Discipline  
**Marcin Luczkowski, John Haddal Mork, Steinar Hillersøy Dyvik and  
Nathalie Labonnote:**  
Digital Workflows for Timber Free Form Structures - Gamification of Archi-  
tectural and Engineering Design  
**Ragunath Vasudevan, Till Schneider, Kai Otto and Klaus Bollinger:**  
Practical Researchitecture - On the Role of Research in the Context of an  
Architectural Practice

**B1**

## **Structures and Sustainability**

Chair: Angèle Tersluisen, fatuk

**Viktor Poteschkin, Stefan Krötsch, Jürgen Graf and Christopher Robeller:**  
**Recycling of Cross Laminated Timber Production Waste**

**Steffi Silbermann, Hoa Nguyen, Daniel Kohl, Stefan Böhm, Philipp Eversmann and Heike Klussmann:**

**TETHOK – Textile Tectonics for Wood Construction**

**Samira Aden, Rebecca A. Milhuisen, Muhammad Kalim Kashif, Udo Bach and Heike Klussmann:**

**Dye-Sensitized Concrete – Solar Power from Concrete**

**Sherif Abdelmohsen, Passaint Massoud, Rana El-Dabaa, Aly Ibrahim and Tasbeh Mokbel:**

**A Computational Approach for Soft Adaptive Building Skins Using Hygromorphic and Thermobimetal Composites**

**C1**

## **Architectural Space and Perception**

Chair: Cornelia Leopold, fatuk

**Beatrix Emo:**

**Why Evidence-Based Methods are Useful for Architectural Design**

**Holger Mertins, Barbara Mertins, Renate Delucchi Danhier, Ansgar and Benedikt Schulz:**

**The Role of Expertise in the Perception of Architectural Space**

**Andri Gerber, Michal Berkowitz, Beatrix Emo, Stefan Kurath, Christoph Hölscher and Elisabeth Stern:**

**Does Space Matter? A Cross-Disciplinary Investigation upon Spatial Abilities and Spatial Knowledge of Architects**

**Giulia Vismara:**

**Sound as a Space Generator**

**13:00**

### **Lunch**

**14:00**

### **Margitta Buchert, LUH Hannover: In-Between Realms**

Chair: Heike Kern, fatuk

**14:45**

### **Christian Derix, Woods Bagot S., Sydney: The Spatial Turn in Design Computing**

Chair: Helmut Kleine-Kraneburg, fatuk

**15:30**      **Coffee Break**

**16:00**  
**A2**      **Parallel Paper Sessions**  
**Design Methods: New Approaches**

Chair: Christina Jagsch, fatuk

**Joost Meyer and Federico Garrido:**

**Dexterity Controlled Design Procedures**

**Pradeep Devadass, Martin von Hilchen, Sven Stumm and Sigrid**

**Brell-Cokcan:**

**Re-Informed Design Process: Understanding Robotic Fabrication Constraints and their Influence on Design**

**Luise Rellensmann and Jens Casper:**

**Making Heritage: Das Garagenmanifest**

**Dagmar Jäger:**

**Asking the Task: Principles of Traditional Knowledge Production**

**B2**      **Material and Construction**

Chair: Moritz Kaiser, fatuk

**Reiner Klopfer, Christian Weisgerber und Jürgen Graf:**

**Acetylated Beech in Structural Timber Constructions**

**Efilena Baseta and Klaus Bollinger:**

**Digitally Fabricated Active-Bending Beams for the Rapid Assembly of Temporary Structures**

**Roman Polster, Lucas Büscher, Wigbert Riehl and Heike Klusmann:**

**Botanical Concrete: Novel Composites for Urban Greening**

**Felix Lowin and Jutta Albus:**

**Architecture without Architects: Rough Implementation Strategy / Supporting Residential Construction by Precast Building Systems**

**C2**      **Architectural Space and Human Body**

Chair: Judith Leinen, fatuk

**Maria da Piedade Ferreira, Andreas Kretzer and José Pinto Duarte:**

**Embodied Emotions: a Methodology for Experiments in Architecture and Corporeality**

**Helle Braband:**

**Dance with Space – Animate-Configuring**

**Katharina Voigt:**

**Referring to ... Whom?**

**Liselotte Vroman and Thierry Lagrange:**

**Design to Move, Move to Design: an Interdisciplinary Approach for**

**Designing an Architectural Choreography / Designing an Architectural Choreography**



**17:30 Coffee Break**

**18:00 Discussion 1**

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**19:00 Research Culture in Architecture**

Michael Hensel, TU Wien

Margitta Buchert, Leibniz Universität Hannover

Christian Derix, Woods Bagot SuperSpace, Sydney

Maria da Piedade Ferreira, fatuk

Peter Spitzley, fatuk

Ulrike Weber, fatuk

Moderator: Georg Vrachliotis, KIT Karlsruhe

**20:00 Dinner**

# Program

## Friday

**09:00**  
**A3**

### **Parallel Paper Sessions** **Architecture and Visualization**

**Chair: Franziska Wilcken, fatuk**

**Isabell Schütz:**

**The Biorealistic Approach in the Settlement Architecture of Richard Neutra**  
Rachele Bernardello, Paolo Borin, Isabella Friso, Andrea Giordano,  
Cosimo Monteleone and Federico Panarotto:

**Cultural Dissemination and Interoperable Management of Architecture**

Shilong Tan, Yuxin Yang and Luigi Cocchiarella:

**AR&VR, New Tools for Architecture Design and Architectural Visualization**

**B3**

### **Digital Timber Construction**

**Chair: Christopher Robeller, fatuk**

**Jan Brütting, Julieta Moradei, Corentin Fivet, Aliz Fischer and**

**Nick Sherrow-Groves:**

**Reconsidering Traditional Timber Joinery for Sustainable Structures**

**Miro Bannwart:**

**The Gravitational Pavilion - Simplified Node Complexity**

Dominga Garufi, Hans Jakob Wagner, Simon Bechert, Tobias Schwinn,

Dylan Marx Wood, Achim Menges and Jan Knippers:

**Fibrous Joints for Lightweight Segmented Timber Shells**

Dennis Röver and Jürgen Graf:

**Densified Veneer Wood Reinforced Timber Joints**

**C3**

### **Architectural Education**

**Chair: Oda Pälmeke, fatuk**

**Angelika Jäkel, Susanne Gerstberger and Fanny Kranz:**

**Collaborative Tools. Adaptions from the Educational Sciences to Research in Architecture**

**Alexa Maria Kunz and Bernd Sum:**  
Research Architecture | Architectural Research – A Seminar Concept for Research-Oriented Education  
**Moritz Dörstelmann, Daniele Santucci and Ferdinand Ludwig:**  
Prototyping Based Research Methodology and Interdisciplinary Research-Oriented Teaching  
**Bettina Kraus, Nandini Oehlmann and Mathias Peppler:**  
Werkstücke – Making Objects into Houses / Understanding by the Way of the Hands in Design Teaching

**10:30 Coffee Break**

**11:00 Eike Roswag-Klinge, TU Berlin:  
Designing Natural Buildings**

Chair: Stephan Birk, fatuk

**11:45 Caitlin Mueller, MIT Cambridge:  
Exploring Design with Data:  
Tools and Techniques for  
Performance-driven Architecture**

Chair: Johannes Modersohn, fatuk

**12:30 Poster Session**

**Jan Brütting, Gennaro Senatore and Corentin Fivet:**  
Re-Use in Architecture and Structural Design  
**Margherita Ferrari:**  
Headmade. The Transformation of the Wood Manufacturing  
**Anke Fissabre, Inga Hahn, Gesa Königstein, Heike Matcha, Günter Barczik and Nikolai Roskammi:**  
Teaming, Taming and Teeming: Teaming up People for Taming Complex Problems by Creating Environments Teeming with Possibilities  
**Fabrizio Leoni:**  
Leisure / Hospitality / Exhibition. Three mixed-use Projects for Milan, Olbia, Sanya, at the Frontier of Teaching, Researching and Professional Design  
**Manuel Pfänder:**  
Tailored Precast Concrete Structures – Experimental Design of Tailored Fabric Formwork for Precast Structural Concrete Elements  
**Clara Rellensmann and Alexander Römer:**  
Studio Bagan – Building in Heritage Contexts  
**Torsten Schröder:**  
Translating the Concept of Sustainability into Architectural Design Practices: The Case of London City Hall

**Benoît Vandenbulcke:**

**Savoir-faire/faire savoir: How to Engage Architecture Practice as a Research Tool?**

**Vera Viana:**

**Topological Interlocking of Convex Regular Polyhedra**

**13:00**

**Lunch**

**14:00**

**Sigrid Brell-Cokcan, RWTH Aachen:  
Individualizing Production with DIANA - a  
Dynamic and Interactive Robotic Assistant  
for Novel Applications**

**Chair: Christopher Robeller, fatuk**

**14:45**

**A4**

**Parallel Paper Sessions  
Mathematical and Structural Design  
Approaches**

**Chair: Cornelia Leopold, fatuk**

**Toni Kotnik:**

**Architecture as Science of Structures**

**Hao Hua, Jiacheng Wang, Biao Li, Tingli Jia and Peng Tang:**

**Pythagorean Carpenter**

**Cristoph Dijoux, Alexander Stahr and Martin Dembski:**

**Form Finding of Grid-Shells with Straight, Equal Line-Length Rods**

**Corneel Cannaearts and Holger Hoffmann:**

**Grounding Associative Geometry**

**B4**

**Robotics in Timber Construction**

**Chair: Christopher Robeller, fatuk**

**Samuel Leder, Ramon Weber, Oliver Bucklin, Dylan Wood and**

**Achim Menges:**

**Towards Distributed in Situ Robotic Timber Construction**

**Andreas Thoma, David Jenny, Matthias Helmreich, Augusto Gandia,**

**Fabio Gramazio and Matthias Kohler:**

**Cooperative Robotic Fabrication of Timber Dowel Assemblies**

**Benedikt Wannemacher and Philipp Eversmann:**

**Intuitive Path Planning for Robotic Timber Beam Assembly**

**Bahar Al Bahar, Abel Groenewolt, Oliver Krieg and Achim Menges:**

**Bending-Active Lamination for Spatial Timber Structures: Robotically  
Fabricated Elements with Continuous Fibre Alignment**

## C4

# Sustainability and Climate Approaches

Chair: Andreas Winkels, TH Bingen

Gabriela Celani, Sabine Hoffmann, Lucila Labaki, Watson Loh,  
Caio Gomide Otoni and Maikol Yabuki:

**Affordable Application of PCM for Passive Indoors Temperature Control  
in a Tropical Climate**

Rosaria Revellini, Massimiliano Condotta and Francesca Cappelletti:  
**Parametric Design for Bow-Windows Optimization According to  
Daylighting**

Christoph Kuhn, Karsten Tichelmann, Edin Saronjic and Dieter Blome:  
**Dammerstock 2020**

Luyi Liu and Luigi Cocchiarella:  
**Lifestyle Landscape Architecture**

**16:00**

**Coffee Break**

**16:30**

**Discussion 2**

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**18:00**

**Research Culture in Architecture**

Elke Roswag-Klinge, TU Berlin

Caitlin Mueller, MIT Cambridge

Sigrid Brell-Cokcan, RWTH Aachen

Cornelie Leopold, fatuk

Christopher Robeller, fatuk

Peter Spitzley, fatuk

Moderator: Georg Vrachliotis, KIT Karlsruhe

# Location

## Building 1

### C

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R 004

**C1–C4 Parallel Paper Sessions**

**Entrance** —

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### A

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R 160

**Keynote Speakers**

Michael Hensel, TU Wien  
Margitta Buchert, Leibniz Universität Hannover  
Christian Derix, Woods Bagot SuperSpace, Sydney  
Eike Roswag-Klinge, TU Berlin  
Caitlin Mueller, MIT Cambridge  
Sigrid Brell-Cokcan, RWTH Aachen

**A1–A4 Parallel Paper Sessions**

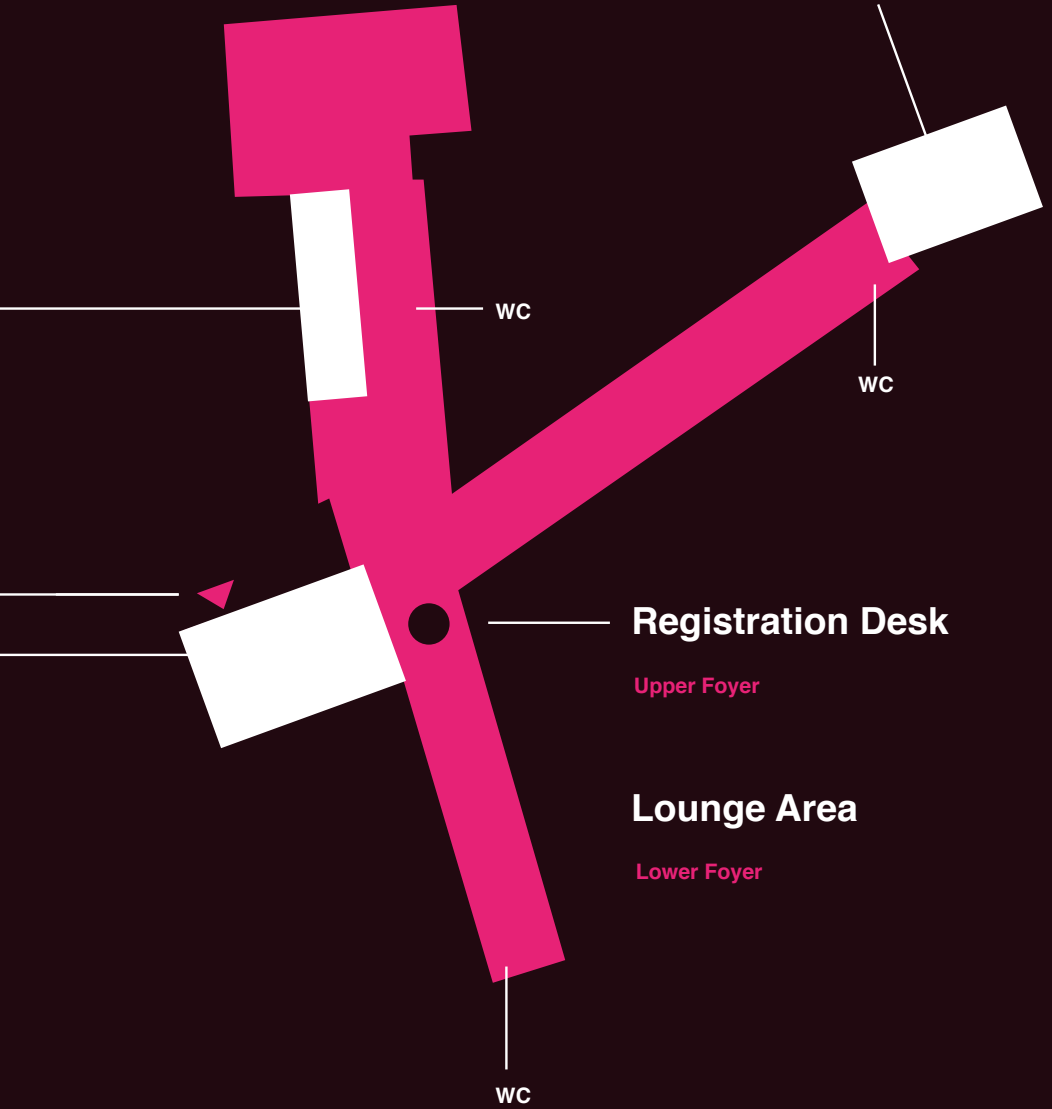
**Poster Session**

**Discussions**

# B

R 019

B1–B4 Parallel  
Paper Sessions



**The Faculty of Architecture of the TU Kaiserslautern (fatuk) invites researchers to meet in a quiet and stimulating environment, on the edge of the only transboundary biosphere reserve in Germany, the Palatinate Forest. This conference serves to present current research projects from the various fields of architecture and to promote cross-disciplinary discussions on relevant issues: What is research in architecture? Do buildings contain innovations that have not been published because they were not understood as research? How does research relate to the practice of architecture? Does research in architecture happen exclusively at universities? Or also in practice?**

**DFG**

TUNACHWUCHSRING



**Bauforum**  
Rheinland-Pfalz

Architektenkammer  
Rheinland-Pfalz  
[www.diearchitekten.org](http://www.diearchitekten.org)

**fatuk**

Fachbereich Architektur  
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Kaiserslautern



**TECHNISCHE UNIVERSITÄT  
KAISERSLAUTERN**