Built and Lived Environment

Towards a Sustainable and Livable Urban and Regional Future
Science Day 30.06.2022 at Pop-up Campus in Aachen

BLE Growth Area Built and Lived Environment (BLE)

RWTH AACHEN UNIVERSITY

ZUKUNFT BAU FÖRDERN FORSCHEN ENTWICKELN

POP-UP CAMPUS

Introduction

The Science Day 2022 for the growth area ‘Built and Lived Environment’ aims to foster inter- und transdisciplinary exchange in relation to urgently needed solutions for a livable future of cities and human settlements. In times of multiple and accelerating trends that are aggravated by drivers such as climate change, individualization, digitalization as well as energy or mobility transitions, the built and lived environment must adapt, reorient and profoundly restructure to enhance sustainability and resilience. The current ‘full world’ of existing settlements and infrastructures such as in Western Europe requires transition processes for which solutions are context-specific, ‘error-friendly’ or even self-repairing. Simultaneously, these solutions need to be sensitive to the shifts as well as interrelations of different spatial scales – from the component to the construction site, and up to the district, city, or regional scales. Meanwhile, the scarcity of material resources as well as habitable and productive land are, to some extent, driving innovation. More specifically, this scarcity inspires and stimulates close interplay between spatial, technological, and social innovation. The potential and interwoven innovation can generate possible solutions that cannot be envisaged as one-time responses. Rather, these solutions are better conceived as a set of interventions intended to carefully anticipate change that is specific and systemic. Setting forth in developing these solutions is both an opportunity and challenge in identifying and improving factors that build and enhance capacities to be ‘mutual adaptive’. In other words, these are solutions with which users might interact; these are solutions that might reflexively (re)acting over time. Whether these solutions are anchored with orientations towards urban health, carbon neutrality, climate resiliency, resource efficiency and value, permeating flexibility, BLE is a moment for us to come together and frame how we solve.

BLE focuses on five ‘mutual adaptive solutions’: Urban Health Solutions, Carbon Sink Solutions & Materials, Built-as-Resource Solutions, Climate Change Adaptation and Agile Infrastructure Solutions.

BLE invites researchers from a broad range of disciplines within RWTH as well as collaborators from different institutions and fields of action to share their knowledge and to further discuss research perspectives in each of the five solutions. **In particular, BLE addresses young researchers, Doctoral and Post-Doc candidates, to join the diverse solutions and research groups through insightful and short presentations on original work!**

The event will be an occasion to experience the unique atmosphere of the BBSR Pop-up Campus – an excellent demonstrator for a ‘built-as-resource’ solution in the city of Aachen and a place to share R&D outputs and outcomes regarding sustainable building with colleagues from all over Germany.

The Science Day event is **open to interested public** in the city and region of Aachen. From 4 pm on the event will focus on the inter- and transdisciplinary dialogue and hence actively involve external partners in the scientific debate. A public lecture will conclude the event before guests are invited to informally mingle at the roof-top bar.

Agnes Förster & Frank Lohrberg

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Program Overview
Location: Theaterstraße 92–94

09:30	Get-Together			
10:00	Welcome | Rector Ulrich Rüdiger Introducing BLE | Frank Lohrberg & Tobias Kuhnimhof Program of the Day | Agnes Förster			
11:00	Parallel Sessions I			
	Urban Health Solutions	Carbon Sink Solutions & Materials	Built-as-Resource Solutions	Climate Change Adaptation
	Short Presentations	*Presentations and discussions*	*Presentations and Discussions*	*Presentations and Discussions*
	Urban	New Materials as Enablers for a Decreased Resource and Carbon Footprint in Construction	Resilience and the Urban Heritage	Technical Adaptions to Climate Change
	Subjective Evaluations of Urban Sound- and Landscape using Virtual Reality	Biobased, High-Performance Geotextiles with Defined Degradability	Resilience and Cultural Heritage - Challenges for Local Goverments and Interdisciplinary Experts	DeepWarn: Multimodal Flood Forecasting System Using Deep Learning
	Put Human Well-Being on the Map	Biomass Ashes as Supplementary Cementitious Materials	Futur[AHR]. Resilience and Growth Through Cultural Heritage	Droughts and Floods: Approaches for a Resilient Water Management in Times of Climate Change
	Strategies and Techniques for Urban Space Adaption to Extreme Climatic Phenomena	Stabilised Earth Binders for Low Strength Applications	*Discussion with Anke Fissabre and Sandra Fatorić*	Green-Blue Streets: Towards Transdisciplinary Design-Teaching for Water Sensitive Cities
	Health in Growing Districts - Neighborhood as a Prospect for Well-Being	Mycelium-Based Composites with Minimal CO_2 Footprint for the Building Industry		Strategic Decision Support for Municipal Climate Change Adaptation in the City of Duisburg
	Building	Circularity in Construction		Climate Resilience of Urban Infrastructures in Central Europe
	Housing Consumption in Germany - No Significant Reduction in Per Capita Living Space in Sight	Recycling Strategies to Exploit the CO_2 Savings Potential of Textile Reinforced Concretes		
	HYDE - Hybrid Tools of Thought. At the Interface of Material Experience and Digital Abstraction			
	City Factories as Means for Mixed Use and Densification in Outskirts			

12:30	Lunch & Get-Together				
13:30	Presentation and Workshop on DFG Applications | Division 4.2				
14:00	Parallel Sessions II				
	Urban Health Solutions	Carbon Sink Solutions & Materials	Built-as-Re-source Solutions	Climate Change Adaptation	Agile Infrastructure Solutions
	Short Presenta-tions and Overall Discussion	*Presentations and Discussions*	*Presentations and Discussions*	*Presentations and Discussions & Round Table and Summary*	*Presentations and Discussions*
	Indoors	Novel Design Principles and Manufacturing Technologies for Material Minimised Structures	Resource Manage-ment and the Urban Heritage	Implementation and Transformation	Temporal Orgware for Agile Infrastructure: Rhythmic Recon-structions for Space-Specific and Adaptive Urban Develop-ment
	Method for a Holistic Mea-surement of In-door Air Auali-ty and Resulting Comfort	Waldlabor Köln: Introducing Additive Manufacturing into Landscape Architecture in a Cross-Disci-pline Approach	Regulatory Sys-tems for Main-taining Asset Value of Exist-ing Buildings, Incorporating Grey Energy	Green Roofs and Walls: Ideas for Interdisciplin-ary Living Lab Teaching	Reusing Decom-missioned Open-Cast Coal Mines for District Heating and Cooling
	Working from Home: Non-Ener-getic Effects and Rebounds of Changing Work-place Environ-ments	Spatial Concrete Extrusion for Material-Mini-mized Concrete Structures	Superlocal Circular Building Project	Life Cycle Sus-tainability As-sessment in the Construction Sector - Actual Application and Future Outlook for Higher Edu-cation and Expert Raise	Designing with Nature-Based Solutions for a Resilient and Co-Produced Green Infra-structure
	The Effects of Remote Working on our Behavior-al Patterns and Energy Consump-tion	An Innovative 3D-Printing Pro-cess for Rein-fored Concrete Structures	Living Lab for the Energy Transition in the Building Sector	Problem-Based Learning for Future Challenges in Engineering Education	Agile Infra-structure: Lessons Learnt from Community-Led Responses to the Pandemic
	Effects of Cool and Warm Condi-tions on Physio-logical and Psychological Responses	New Approaches to Assess Sustain-ability and Materiality of Construction	*Discussion with Franziska Haas and Petra Riegler-Floors*	Sustainability in Teaching - The Role of In-terdisciplinary and Cross-Uni-versity Courses	Living Lab Research Infra-structures: One-Trick Ponies or Agile All-Round-ers
	Classroom and Office Noise: From Real-World to Laboratory and Back Again	New Design Pos-sibilities and their CO_2 Foot-print - An Outlook to the Future		Transformative Research as a Motor for Change - Lessons from the Research Project KlimaNetze	

	Overall Discussion	Thinking the Future - End-of-Life Life Cycle Assessment of Fibre Reinforced Concrete			
	Perspectives on Person- and Place-Based Approaches to Urban Health: Multiple Disciplines, Scales, and Modalities	Information Delivery Model for a Circular Design Process			
		Treatment and Utilisation of Wastes			
		CO_2 Beneficiation of Industrial By-Products			
		Activated Bauxite Residues - Secondary Cementitious Materials for the Future			
15:45	Break				
16:15	Plenary: Presentation of the Reflections and Findings from the Parallel Sessions Discussion on Connections and Synergies Between the Solutions				
17:30	Break				
18:00	Public Lecture | Uta Pottgiesser Professor for Heritage & Technology, TU Delft Professur für Baukonstruktion und Baustoffe, TH OWL Chair DOCOMOMO International				
19:00	Reception and Get-Together at the Roof-Top Bar				

Imprint
Built and Lived Environment (BLE) - a Growth Area of RWTH Aachen University

Research Collaboration between the Faculties of Architecture, Civil Engineering, Georesources and Materials Engineering, Arts and Humanities, Medicine, as well as the School of Business and Economics

BLE Spokespersons: Frank Lohrberg, Tobias Kuhnimhof

Editorial Team of the Book of Abstracts:
Agnes Förster, Robin Chang

Editorial Teams for the Sessions:
Urban Health: Marcel Schweiker, Agnes Förster, Daniel Münderlein, Helena Schulte
Carbon Sink Solutions & Materials: Thomas Matschai, Anya Vollpracht
Built-as-Resource: Carola Neugebauer, Christa Reicher
Climate Change Adaptation: Thomas Wintgens, Frank Kemper, Andreas Witte
Agile Infrastructure: Stefan Böschen

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BLE Science Day 2022 is hosted by BBSR Pop-up Campus
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