Urban Infrastructures: Criticality, Vulnerability and Protection

International Conference of the Research Training Group KRITIS

at Technische Universität Darmstadt, Germany

7th-8th February 2019

Cities are the major sites and physical nodes in the infrastructurally mediated flows of water, energy, waste, communication, people, goods and services. Networked infrastructures have become increasingly critical for urban life. Their smooth operation is a prerequisite for the well-being of urban populations, and for economic prosperity and political stability in our cities.

However, their smooth functioning is not a given. Due to their complexity, interconnectedness and strong interdependency, these systems are highly vulnerable. The failure of a subsystem can cause serious cascading malfunctions within and across the system boundaries. A long power outage in a city can result, e.g., in the malfunction of water supply and wastewater disposal, and the breakdown of traffic flows and telecommunications, which in turn can have severe economic consequences and result in the failure of emergency and safety systems.

Obviously, there is a need for protecting critical infrastructures (CIs), taking into account their specific characteristics as socio-technical systems and their embeddedness in urban space. Besides engineering perspectives, the social sciences and the humanities are needed in order to assess the challenges and requirements of CI protection. Since 2016, the Research Training Group KRITIS at the Technische Universität Darmstadt has been carrying out multidisciplinary research on this topic. Its programme is based on concepts from Science and Technology Studies (STS), considering the interrelatedness of social/human and technical/material factors. In particular, protection strategies should be developed or assessed that take into consideration the criticality, vulnerability, and resilience of critical infrastructures in their interrelatedness and their embeddedness with urban space.

In its first international conference, the Research Training Group will bring together civil engineers, computer scientists, urban and spatial planners, architects, sociologists, political scientists, historians and philosophers as well as practitioners from public administration and operators of critical infrastructures.

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Thursday, 7 February 2019

08:45 – 09:15 - Registration

09:15 – 09:30 - **Welcoming Remark**

09:30 – 10:15 - **Keynote**
Per Högselius (KTH Royal Institute of Technology Stockholm): The Dialectics of Complexification

10:15 – 10:45 - Coffee Break

10:45 – 12:15 - **Panel "Governance"** - Chair: Jochen Monstadt (Utrecht University)
Alice Knauf and Andreas Huck (TU Darmstadt): Governing Urban Infrastructure Resilience:

Institutional Barriers and Opportunities
Inke Schauser (Umweltbundesamt, Dessau): Assessing Climate Change Impacts on Infrastructures
Eva Stock (Federal Office of Civil Protection and Disaster Assistance (BBK), Bonn): Critical Infrastructure Protection: Integrated Risk Management as an Approach to Address Governance Complexities and Cooperation in Civil Protection in Germany

12:15 – 13:15 - Lunch Break

13:15 – 14:45 - **Panel "Spatiality"** - Chair: Sybille Frank (TU Darmstadt)
Ivonne Elsner and Marcel Müller (TU Darmstadt): The Impact of Infrastructure Disruptions on Our Everyday Perception of Space
Pranjali Deshpande (Institute for Transportation and Development Policy, Pune): Towards a Sustainable City: Case of Pune
Timothy Moss (Humboldt University Berlin): Vulnerable City, Resilient Infrastructures? Re-appraising Sociotechnical Continuity and Change Through Berlin's Turbulent Modern History

14:45 – 15:15 - Coffee Break

15:15 – 16:45 - **Panel "Temporality"** - Chair: Jens Ivo Engels (TU Darmstadt)
Uwe Lübken (Ludwig-Maximilians-Universität München): When Rivers Don't Behave: Natural Rhythms and Infrastructural Failure(s)
Stephanie Eifert, Nadja Thiessen and Benedikt Vianden (TU Darmstadt): Time to Be in Time
Susanne Krings (Federal Office of Civil Protection and Disaster Assistance (BBK), Bonn): Legislating Contingency and Managing Criticality

16:45 – 17:15 - Break

17:15 – 18:00 - **Keynote**
Jon Coaffee (University of Warwick, Coventry; New York University): Futureproofing City Infrastructures: Transitioning from Risk Towards Resilience

18:00 – 19:00 - **Postersession**

19:30 - Conference Dinner

Friday, 8 February 2019

09:15 – 09:45 - **Keynote**
Christoph Lamers (State Fire Service Institute North Rhine Westphalia, Münster): Fire Service and Technical Relief – a Structure in Space and Time

09:45 – 10:15 - Coffee Break

10:15 – 11:45 - **Panel "Safety & Security"** - Chair: Uwe Rüppel (TU Darmstadt)
Thomas Köstler (Fire Department Lübeck): Power Failure in Lübeck Including Failure of the TETRA Digital Radio - Measures for Police and Non-police Emergency Response
Arturo Crespo and Marcus Dombois (TU Darmstadt): User-based Contingency Planning for Railway Disruptions Using Network Analysis
Sylvia Bach (Universität Wuppertal): Towards a Smart Critical Infrastructure! – Big Data Offers New Chances for Resilience

11:45 – 12:15 - Coffee Break

12:15 – 13:45 - **Panel "ICT Solutions"** - Chair: Matthias Hollick (TU Darmstadt)
Florian Steinke (TU Darmstadt): Are Resilience Requirements Driving Decentral Solutions in

Energy?
Antonio Jorba (COUNT+CARE/Digitalstadt Darmstadt): LoRaWAN: The Wireless 'Nervous System' for Digital Cities
Jiska Classen and Lars Almon (TU Darmstadt): Bricked or Useful Tool: The Role of Everyday Electronic Devices in Crises

14:30 – City Tour: "Darmstadt at a Glance"

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Contact & Registration

Venue
Technische Universität Darmstadt
Hochschulstraße 1, Building S1|03
Wilhelm-Köhler-Saal (Rooms 283-284)
64289 Darmstadt, Germany

Conference Fee
Early Bird (until 31 December 2018): 100 EUR
From 1 January 2019: 160 EUR
Members of TU Darmstadt: free
Registration Deadline is 31 January 2019

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