

### Probabilistic techniques in resilience modeling

**Speaker: Prof. Jürgen Hackl, Princeton University**

**Host: Prof. Michael Havbro Faber, Aalborg University**

**Time: 15.12.2022, 15:00 – 16:00 Eastern Standard Time**

#### Lecture outline:

This lecture introduces a general risk and resilience assessment process to support the managers of complex infrastructure systems to understand, model and quantify the risk and resilience of their systems affected by natural hazards. This process is supported by novel engineering tools, including models for simulations of spatial-temporal hazards, consequences, and recovery of infrastructure components and systems. Innovative approaches from the field of network science are introduced to address the interdependencies between different infrastructure systems and their dynamical relationships. The lecture also includes a broader discussion of interdisciplinary considerations that should be accounted for, in order to achieve sustainable and resilient infrastructure systems.

#### About the speaker:

Dr Jürgen Hackl is an Assistant Professor at Princeton University and a member of the Data Analytics Group at the University of Zurich. His research focuses on complex infrastructure systems, intelligent risk and resilience assessments to climate change, as well as integrated solutions to future challenges facing our cities and society. He works at the interface between formal methods in network sciences and their integration with prevailing simulation methods. He is particularly interested in developing scalable data analytics and machine learning techniques for spatial-temporal networks applied to dynamic processes in complex multiscale civil engineered systems to open and interconnect new perspectives for, e.g., modeling of usage, behavior, and performance; analysis of system integration; as well as detection of systemic risks in socio-technical systems.



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