

## EINLADUNG

Zeit: Donnerstag, 09.02.17, 14:00 Uhr

Ort: E2, Raum 5056, Ahornstraße 55

Referent: Prof. Dr. Joel Greenyer  
Leibniz Universität Hannover

Titel: Scenario-based Design and Analysis of  
Structurally Dynamic Reactive Systems

### Abstract:

Software-intensive systems such as communicating cars or modern industrial production systems consist of multiple interacting components and physical or virtual relationships between components change at run-time. This dynamic system structure influences the components' behavior, which again affects the system's structure. Combined with the often distributed and concurrent nature of the software, this causes substantial complexity that must be mastered during system design. We propose a formal specification method that combines scenario-based modeling and graph transformations. The specifications are executable and can be analyzed via simulation. We furthermore developed a formal synthesis procedure that can find inconsistencies or prove the specification's realizability. This method is implemented in ScenarioTools, an Eclipse-based tool suite that combines the Scenario Modeling Language, an extended variant of LSCs, and graph transformations modeled with Henshin. The particular novelty is the synthesis support for systems with dynamic structure.