



# **EINLADUNG**

## **zum**

# **ZIH - KOLLOQUIUM**

**Title: Integrated Framework for Simulating Behaviors of Nuclear Power Plants under Earthquakes**

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### **Abstract:**

In order to safely and stably supply energy by nuclear means, structural integrity and design standards of the plant including factors such as aging must be confirmed, and its future conditions must be predicted with high reliability. Although full-scale experimentations are favourable for acquiring necessary information and carrying out investigative studies of the nuclear structures, such experiments are for most cases physically and financially impossible.

Our objective is to establish an integrated full-scale simulation framework for simulating and quantitatively investigating the vibration behavior of nuclear power plant equipments under earthquakes.

In order to realize such wide-range simulation beginning from earthquake to equipment vibration in an integrated manner, simulations spanning three scales need to be dealt. The largest spatial scale is the elastic wave propagation including fault modeling for simulating earthquakes. The second scale involves dynamic interactions between ground (soil) and a plant-housing structure including heterogeneity and nonlinear properties of the ground. Lastly, simulations of vibration behaviors of equipments will be carried out including its interactions between the plant housing.

**gez. Prof. Dr. Wolfgang E. Nagel**