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Unser Zeichen:
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Einladung
zum IKET-Kolloquium

Zeit: Dienstag, 13. Mai 2014, 15.00 Uhr

Ort: Kolloquiumsraum des IKET, Campus Nord, Bau 419, Raum 104

Referent: Prof. Hisashi Ninokata, c/o Politecnico di Milano, Dipartimento di Energia, Milano, Italy

Titel: Subchannel analysis: formulation, physical models and applications to multi-component and multi-phase flows

Zusammenfassung:

The talk will consist of an overview of subchannel analysis method for 1) single- and two-phase flows in nuclear fuel rod assemblies of LMFRs and LWRs, and 2) multi-component and multi-phase flows associating with the fuel subassembly disintegration under the conditions of LMFR severe accident conditions.

First, a brief description of the subchannel analysis and constitutive model requirement is discussed in a single-phase flow regime. The constitutive models are a result of averaging conservation equations over the subchannel control volumes including momentum and energy exchanges at both fluid-fluid and structure-fluid interfaces, e.g., in the presence of wire spacers.

Then, the method for two-phase flow situations is shown based on the two-fluid three-field model to better describe the boiling transition and rewetting phenomena in grid-spacered fuel rod bundles of BWRs.

Finally the two-phase flow method is extended to the multi-component and multi-phase flows to simulate the sodium boiling, fuel pin melting and molten materials relocation processes. Computed results will be compared to the in-pile experiments of unprotected loss of flows (ULOF) and total inlet blockage (TIB) accidents carried out at SCARABEE.

gez. T. Schulenberg

Alle auswärtigen Besucher des Kolloquiums werden gebeten, ihren gültigen Personalausweis oder Reisepass mitzubringen.