



Karlsruher Institut für Technologie

KIT | INR | Hermann-von-Helmholtzplatz 1  
76344 Eggenstein-Leopoldshafen

## Aushang

### Institut für Neutronenphysik und Reaktortechnik

Komm. Institutsleitung:  
Prof. Dr.-Ing. John Jelonnek

Hermann-von-Helmholtz-Platz 1  
76344 Eggenstein-Leopoldshafen

Telefon: 0721-608-22552  
Fax: 0721-608-23718  
E-Mail: [ingeborg.schwartz@kit.edu](mailto:ingeborg.schwartz@kit.edu)  
Web: [www.inr.kit.edu](http://www.inr.kit.edu)

Bearbeiter/in: Ingeborg Schwartz  
Unser Zeichen: ISC  
Datum: 17. Januar 2025



### Einladung zum Seminar über „Nukleare Energieerzeugung“

**Zeit:** Montag, 3. Februar 2025, 11:00 Uhr

**Ort:** Karlsruher Institut für Technologie, Hermann-von-Helmholtz-Platz 1  
76344 Eggenstein-Leopoldshafen, INR, Bau 521, Raum 302

**Referent:** Herr Dr.-Ing. Javier Jiménez Escalante, Westinghouse, Mannheim

**Titel:** Modeling and Validation of the UPTF-21 Tests Series Using the WCOBRA/TRAC-TF2 Code

#### Abstract:

The WCOBRA/TRAC-TF2 (WCT-TF2) computer code is the core of the FULL SPECTRUM™ loss-of-coolant accident (FSLOCA™) evaluation model (EM) (WCAP-16996-P-A, Revision 1). This paper focus on the validation of the EM application to plants (such as Westinghouse AP1000® and AP300™ Pressurized Water Reactors) with reactor vessels having the capability to inject Emergency Core Cooling System (ECCS) water directly into the downcomer (also known as Direct Vessel Injection, DVI).

The Upper Plenum Test Facility (UPTF) is a test facility that studies flow conditions during a loss-of-coolant accident as a part of an international 2D/3D research program. The facility was based on German four-loop PWR, but the safety injection system was configured to reflect a wide variation of ECCS configurations among different PWRs, such as cold leg injection in Westinghouse PWR, hot leg injection, upper plenum injection, and downcomer injection. The UPTF-21 was a downcomer experiment with Emergency Core Cooling (ECC) injection directly into the full-scale downcomer of a pressurized water reactor with vent valves closed. It was a quasi-steady state separate effects test with broken cold leg fully open carried out in four Phases A, B, C and D.

The three phases that will be discussed during the lecture are Phase A (Run 272), Phase B (Run 274) and Phase D (Run 271). Phases A and B were designed to investigate Emergency Core Cooling System (ECCS) delivery to the vessel via downcomer injection nozzles at the end of blowdown (EOB) / refill periods (including downcomer bypass) and the steam/water countercurrent flow limitation (CCFL) in downcomer. Phase D simulation is a reflood test with downcomer injection into the reactor vessel.

**Hinweis:** Alle auswärtigen Besucher des Seminars werden gebeten, ihren gültigen Personalausweis oder Reisepass mitzubringen

Karlsruher Institut für Technologie (KIT)  
Kaiserstraße 12  
76131 Karlsruhe  
USt-IdNr. DE266749428

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