

Aushang

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Einladung zum Seminar über „Nukleare Energieerzeugung“

Zeit: Montag, 2. November 2026, 11:00 Uhr

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

Referent: Herr Professor Dr. Cesar Queral, Universidad Politecnica de Madrid, Spain

Titel: US - EURATOM I-NERI Project “Modeling of Small Modular Reactors with Accident Tolerant Fuels

Abstract:

The I-NERI project involves several institutions: UPM, BNL, NFAQ, and INL. The main goals of this project are:

- To demonstrate and quantify the safety benefits ATF provides for SMRs.
- To apply different tools in conjunction: neutronics, TH models, PRA models, and fuel performance models.
- To evaluate different ATF candidate claddings (SiC, FeCrAl, others), for a SMR-LWR design.
- To perform safety analysis of SMR-LWR with ATF in a broad spectrum of transient and accident scenarios.

The selected SMR design was the NuScale design. This is a Light Water-Small Modular Reactor with an integral Reactor Pressure Vessel design that relies on natural circulation to establish the primary side mass flow-rate.

The study addresses the sequences identified as dominant contributors to Core Damage Frequency in NuScale Probabilistic Safety Analysis. These include different kind of sequences like Loss of Support Systems, Loss of Offsite Power, Generic Transient, LOCA on the CVCS discharge line inside the CNV, and Loss of DC Power.

For each initiating event, the relevant accident sequences were analyzed, considering both nominal system responses (where all safety features actuate as designed) and scenarios involving system failures that require specific management actions. This approach provides a comprehensive understanding of the thermal-hydraulic behavior by evaluating critical safety parameters, such as Peak Cladding Temperature, Equivalent Cladding Reacted, and Fuel Failure Ratio. These metrics were used to characterize the success and core damage sequences and quantify the safety margins and available times within successful management strategies.

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