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Datum: 10.06.2024

Aushang

Einladung zum Seminar über „Nukleare Energieerzeugung“

Zeit: **Montag, 15. Juli 2024, 11:00 Uhr**

Ort: Karlsruher Institut für Technologie, Hermann-von-Helmholtz-Platz 1
76344 Eggenstein-Leopoldshafen, INR, Bau 521, Kolloquiumsraum (R. 302)

Referent: Herr **Dr. Julian Duran Gonzalez**, Karlsruher Institut für Technologie, INR

Titel: Development of an SPN solver for Nuclear Reactor Analysis

Abstract:

Advancements in numerical calculation theory have significantly improved nuclear reactor modeling, crucial for the safety and cost-effectiveness of nuclear power plants. For new advanced designs like Small Modular Reactors (SMRs) with heterogeneous cores, traditional diffusion approximation is inadequate for describing neutron physics in detail. A widely used alternative is the SPN approximation, which offers a better alternative, providing improved accuracy over diffusion with less computational demand than methods like PN, SN, and MoC.

At KIT-INR, efforts are underway to develop in-house tools for analyzing nuclear reactors, including the recently developed KANECS code. This deterministic solver based on the SPN approximation addresses the 3D steady-state neutron transport equation in Cartesian geometry. KANECS has been tested against challenging classical benchmarks, demonstrating its ability to accurately predict the effective multiplication factor (keff) and power distribution, closely aligning with reference solutions. This validation confirms that KANECS can be a reliable neutronic code for reactor analysis.

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