

Aushang

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Datum: 04.02.2026



Einladung zum Seminar über „Nukleare Energieerzeugung“

Zeit: Montag, 16. Februar 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. Heriberto Sánchez, National University of Engineering, Peru

Titel: Prompt Neutron Evolution Constant: Experimental and Computational Benchmark using Serpent II Monte Carlo Code at the RP-10 Research Reactor

Abstract:

The precise determination of kinetic parameters is fundamental for the safety analysis and dynamic characterization of nuclear research reactors. This presentation focuses on the determination of the prompt neutron evolution constant α for the Peruvian RP-10 research reactor (10 MW).

The study comprises five experimental campaigns where the Normalized Auto-Power Spectral Density (NPSD) was obtained through neutron noise analysis techniques. To ensure system linearity and isolate the stochastic fission chain noise from thermal-hydraulic feedback, measurements were conducted at low thermal power levels (400 W – 5000 W) under natural convection conditions.

The experimental results obtained for the Nuclear Configuration No. 11 are compared against high-fidelity computational simulations. These simulations were performed using the Serpent II Monte Carlo code, incorporating specific parameters for fuel burn-up and core geometry. This benchmark provides a critical validation of the computational models used for the RP-10, demonstrating the consistency between experimental stochastic fluctuations and Monte Carlo-based kinetic predictions. The findings contribute to the continuous effort of refining safety limits and operational protocols for high-flux pool-type reactors.

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