Karlsruher Institut für Technologie

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

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
Web: www.inr.kit.edu

Bearbeiter/in: Ingeborg Schwartz
Datum: 12.03.2024

Aushang

Einladung zum Seminar über „Nukleare Energieerzeugung“

Zeit: **Montag, 15. April 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 **Professor Dr. John Jelonnek**, Karlsruher Institut für Technologie, IHM-INR

Titel: The Institute for Pulsed Power and Microwave Technology (IHM) – Research on high power sources and related applications

Abstract:

The IHM (Deutsch: Institut für Hochleistungsimpuls- und Mikrowellentechnik) is doing research and development on high power sources and related applications. Research on pulsed power technology includes the development of generators and related applications in materials processing and bioelectrics. Research on microwave technology focuses on microwave sources (gyrotrons) for electron cyclotron resonance heating of magnetically confined plasmas and on applications for materials processing considering dielectric heating and microwave induced plasmas. During the currently running Program-Oriented Funding period (POF4), IHM is involved in the HGF programs “Nuclear Fusion (FUSION)”, “Nuclear Waste Management, Safety and Radiation Research (NUSAFE)” and “Materials and Technologies for the Energy Transition (MTET)”. Projects funded by third-parties complement the HGF research. That includes the research on e. g. microalgae processing at large-scale relevant for industrial processes, the PEF-assisted extraction of valuable compounds and the development of powerful semiconductor-based marx-type pulse generators. Additionally, it includes the development of new materials that mitigate corrosion while being in contact with liquid metals and salts as required for future liquid metal batteries and the technical feasibility and

scaling of CO2-free methane pyrolysis in liquid high-temperature Sn, respectively. Considering applications of high-power microwaves, in the focus are applications to new and innovative energy-efficient industrial processes. Third-party projects include the research on e. g. microwave assisted intermittent pultrusion of CFRP profiles, microwave assisted additive manufacturing with continuous carbon fiber reinforced thermoplastic filaments and the controlling and demolition of the distribution of weeds in crop fields. All research areas are strongly interdisciplinary and require the profound knowledge on electron beam optics, high power microwave technologies, vacuum electronics, material technologies, high voltage technologies and high voltage measurement techniques. The presentation provides a first brief overview on the various research fields.

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