Einladung zum Seminar über „Nukleare Energieerzeugung“

Zeit: Montag, 21. Juni 2021, 11:00 Uhr
Ort: Das Seminar findet online statt.
Referent: Frau Wen Wen, Karlsruher Institut für Technologie, Institut für Neutronenphysik und Reaktortechnik
Titel: Design of a Heat Pipe based DEMO divertor target

Abstract:

Heat pipes are a capillary-driven two-phase systems that transport heat by the evaporation and condensation of a working fluid. In operation, they are characterized by a high effective thermal conductivity, superior even to metals. Hereafter, a divertor target concept using a water-based heat pipe is introduced. The 230 mm long water-based heat pipe, with a capillary structure that combines axial grooves with sintered porous material, is designed with a maximum operational power limit superior to 5.7kW, value that corresponds to a 20MW/m² heat flux on the plasma facing side. The present talk will discuss the various aspects of the concept as well as the strategy to validate the present design, in particular the experimental evaluation of the operational limits of the evaporator under relevant divertor high heat loads. In this context, the respective experimental setup used for the performance validation will be discussed in detail.

gez. R. Stieglitz