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Seminarium Zakładu Energetyki Jądrowej i Analiz Środowiska (UZ3) Departament Badań Układów Złożonych (DUZ)

Wtorek: **10.05.2022**
11:30

Michał Górkiewicz

Investigation of the structured control rods concept for flattening of the power distribution and reactivity swing in the HTGR core

Abstract:

Unique features of the High Temperature Gas-Cooled Reactors (HTGR) core proved their ability to ensure safety even in accident conditions. However, they make the core susceptible to local power peaks that may reduce the TRIStructural ISOTropic fuel (TRISO) ability to maintain radioactive fission products, and worsen the reactor performance. Clearly, control rods have a significant influence on the power profile, however, they may cause power oscillations followed by subsequent power peaks. In order to reduce this effect, an innovative concept of radially divided control rods was investigated. Work was done using a model developed for the Monte Carlo Continuous Energy Burn-up Code (MCB) based on the High Temperature Engineering Test Reactor (HTTR) design by a team from the AGH University of Technology, where the above-mentioned concept was implemented. As a result, a strategy for the operation of structural control rods was proposed, taking into account their influence not only on the power profile but also on reactivity and reactor start-up. During the seminar, the methodology for power profile and control rods worth assessment will be described and the results of the work will be discussed.

Serdecznie zapraszamy
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