



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

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dr Mina Torabi
NCBJ

An Improved Probabilistic Safety Assessment Framework Tailored for High Temperature Gas-cooled Reactors

Abstract:

Probabilistic Safety Assessment (PSA) is an essential methodology for evaluating safety and reliability in nuclear power plants which contribution to the enhancement of reactor design and the regulatory licensing process. This presentation addresses the limitations of applying the traditional PSA method to High Temperature Gas-cooled Reactors (HTGRs) by tailoring it to their unique operational conditions and safety features. The method has been improved by integrating a life-cycle simulation technique as a substitute for the conventional static fault tree analysis. This improvement allows for a more precise evaluation of safety systems of HTGRs within the PSA framework. The practical application of this proposed approach is demonstrated using the High Temperature Engineering Test Reactor (HTTR) with a hypothetical initiating event. The findings of this research confirm the effectiveness and adaptability of this risk evaluation method for HTGRs.

Serdecznie zapraszamy
Tomasz Kwiatkowski, Mariusz Dąbrowski

Bio:

Mina Torabi works as an assistant professor at NCBJ, specializing in PSA for nuclear power plants.