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

Wtorek: **14.06.2022**

11:30

Jacek Kałowski

Safety classification of components and systems inside a research reactor – a process compliant with IAEA requirements and Polish regulations

Abstract:

Safety classification in the design of a nuclear reactor is used to create the appropriate technical requirements for its systems, structures and components (SSC). Based on the assigned safety class, in order to reach the expected level of safety performance, items important to safety have more strict requirements for their technical characteristics, design, testing and manufacturing process and maintenance procedures.

Common nuclear power plant (NPP) reactors are well understood in terms of design safety and operational risks. The safety classification process for NPPs, therefore, is more straightforward than for research reactors. Research reactors typically reach much lower operational powers with smaller radioactive inventory than NPPs. However, due to unique designs are considered more challenging in terms of analytical effort in the design stage. In addition, research reactors may have one of a kind operational modes and operating conditions. Their design may change over time to satisfy research goals. Also, the operational culture is different (R&D environment, academic culture, research-oriented).

Those factors make the safety classification process for a research reactor a challenging task, especially the part of it that involves probabilistic aspects. The topic that is missing detailed coverage in regulatory documents and scientific publications. While general direction can be recognized in the available documentation, many questions arise when dealing with actual implementation.

The presentation is an attempt to describe a general approach to the safety classification process that can be reused in any research reactor, still in the design stage or in operation.

Serdecznie zapraszamy
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