

**Seminarium Zakładu Energetyki Jądrowej i Analiz Środowiska (UZ3)**  
**Departament Badań Układów Złożonych (DUZ)**  
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**Coupling of neutronic and thermal-hydraulic calculations  
for nuclear reactors**

**Abstract:**

There is a common understanding that the prediction of the nuclear reactor performance in various states of operation is a crucial issue for its safety and stability. Several scientific problems regarding the modeling of multi-physics phenomena of the reactor core have to be investigated in order to improve the consistency of the simulation results with reality. An especially important part of the analysis deals with neutron transport and power distribution in the reactor's core, as well as the thermal-hydraulics that determines the heat transfer and temperature distribution. However, it is not sufficient to assess the subjects mentioned above separately as long as the feedback mechanisms exist between them. Regarding that, a literature study has been made in order to overview the existing approaches and methods of achieving coupled - neutronic and thermal-hydraulic calculations. The most important information gathered during the study will be presented and discussed in the context of the possible application and further development.

Serdecznie zapraszamy,  
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