

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

Poniedziałek: **07.10.2019**

9:00-11:00

PNT building – room 208 “Ewa”

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VTT Technical Research Centre of Finland

Past, Present and Future Challenges of Developing the Serpent Monte Carlo Code

Abstract:

The Serpent Monte Carlo code started out in 2004 as a simplified lattice physics code intended for generating group constants for deterministic core simulators, but the scope of applications has considerably diversified over the years. Spatial homogenization is still considered one of the main applications, but some considerable effort has also been devoted to topics like multi-physics coupling. The development of a photon transport mode, advanced geometry types and variance reduction techniques has allowed expanding the field of applications beyond fission reactor analysis, and more recent development areas are related to radiation shielding and fusion neutronics. This presentation gives a developer's insight into the various challenges encountered during the different phases of the work, as well as some lessons learned.

Serdecznie zapraszamy wszystkich użytkowników kodu a także osoby zainteresowane fizyką reaktorową i ogólnie energetyką jądrową jak również metodami numerycznymi.

Dla osób spoza NCBJ rejestracja na wydarzenie odbywa się poprzez stronę internetową studiów doktoranckich nowych technologii reaktorowych:

<http://www.phd4gen.pl>

Zapewniamy bezpłatny transport do/z Świerka (patrz powyższa strona oraz załączony plakat).

Z serdecznymi pozdrowieniami,

M. Dąbrowski, W. Gudowski, T. Kwiatkowski

A short bio:

Jaakko Leppänen received his doctorate from Helsinki University of Technology in 2007. He is currently working as a Research Professor for Reactor Safety at VTT Technical Research Centre of Finland, Ltd. and he holds the position of Adjunct Professor at Aalto University. His work is related to the development of the Serpent Monte Carlo transport calculation code, which is used in more than 200 universities and research organizations worldwide. Dr. Leppänen has authored/co-authored 100 peer-reviewed journal and conference papers and has presented his work in numerous invited.