

# NADZWYCZAJNE KONWERSATORIUM NARODOWEGO CENTRUM BADAŃ JĄDROWYCH

W dniu **23 czerwca 2015 r. o godz. 11.30** tematem konwersatorium, przeznaczonego dla szerokiego grona zainteresowanych współczesną fizyką i techniką jądrową, będzie

## Model and Computer Simulation of Multiphase Flow and Heat Transfer in Reactor Systems

Referat wygłosi

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### **Abstract**

*Unlike single-phase flows, where the main factor behind the quality of computer simulations, with some notable exceptions, is mainly associated with numerical issues, two- or multiphase problems introduce a whole spectrum of additional questions, including but not limited to the: consistency of formulation of both individual models of interfacial phenomena and of the combined interconnected models, impact of differences between the modeling approaches used for multiphase fluid mechanics and for heat transfer, impact of fluid property models, needs to accommodate mechanisms of different scales (both spatial and temporal) into single computational models, numerical stability and convergence, criteria for assessing the correctness of computational grid selection (which may be quite different from those for single-phase flows), and criteria to quantify modeling vs. computational uncertainties.*

*The objective of this lecture is to discuss the impact of the issues mentioned above on the predictive capabilities of computational models of nuclear reactor thermal-hydraulics, and to overview recommended solutions based on lessons learned to date. Fluid-mechanics models of multiphase flow will be discussed first, followed by heat transfer with phase change (including both boiling and condensation). The impact of coupling between these two groups of models will also be addressed. The discussion of individual issues will be illustrated with examples of the predictions using multiscale models and of model validation against experimental data.*

*Konwersatorium odbędzie się w budynku Działu Edukacji i Szkoleń. Zainteresowanych spoza terenu Świerka informujemy, że do Świerka można dojechać autobusem pracowniczym, odchodzącym o godz. 10.15 (Hoża 69, brama wjazdowa).*

Prof. dr hab. Ludwik Dobrzyński