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

Wtorek: **01.12.2020**
11:30

Piotr Prusiński

Non-obvious flow physics in an axi-symmetrical domain

Abstract:

When the fluid passes an axi-symmetrical duct of variable cross-section, one expects to see its symmetrical response, i.e. streamlines arranged in an axi-symmetrical pattern... at least in a time-averaged domain. In this presentation, we are going to introduce a very simple generic example, that contradicts this intuitive assumption. Hence, challenging the sense of the existence of any 2D axisymmetric CFD solver. The coolant flow over a short forward-facing heating cylinder stuck coaxially in an infinite adiabatic channel will be presented. Its mechanism will be explained including possible root cause. The major part of the talk will be devoted to the impact on heat transfer as it is crucial from the nuclear industry point of view. Although it is a very simple geometrical problem, it has no predecessor in the literature of the subject.

Serdecznie zapraszamy,
M. Dąbrowski, T. Kwiatkowski

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