



DOCTORAL RESEARCH TOPIC:

Investigation of inter-phase interactions
in the presence of condensation

RESEARCH FIELD:

Energetics and Power Engineering (T 006)

BRIEF DESCRIPTION OF RESEARCH TOPIC:

The design of non-stationary condensing stratified two-phase flow cannot yet fully estimate all the phenomena occurring inside. An understanding of the interactions between the acting processes would allow exploiting it in a beneficial way by better controlling the heat and mass transfer.

Condensation of vapour to the water surface can be very slow, even at large temperature differences. However, in particular conditions, the rate of vapour mass and heat transfer to water can spontaneously begin to increase exponentially (causing a condensation implosion). When it happens, the vapour-liquid system reaches thermal equilibrium very quickly. The mechanism that triggers this phenomenon is still not fully understood.

It is planned to investigate the condensation in thin layer of steam and water contact in this study. The PhD student will develop and elaborate the research methodology and carry out studies of surface condensation implosion excitation.

SCIENTIFIC SUPERVISOR:

Dr. Marijus Šeporaitis
Laboratory of Nuclear Installation Safety

Lithuanian Energy Institute
Breslaujos 3, 44403 Kaunas
Lithuania

Marijus.Seporaitis@lei.lt

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