



DOCTORAL RESEARCH TOPIC:

Numerical investigation of time dependent fluid flows in elastic channels

RESEARCH FIELD:

Energetics and Power Engineering (T 006)

BRIEF DESCRIPTION OF RESEARCH TOPIC:

We invite students to continue developing their competencies and to choose one of the relevant topics for doctoral research related to the application of advanced 3D simulations to study the interaction between a solid body and a fluid:

1. Numerical modeling of the pipes in heat distribution networks and components of nuclear reactor systems, aimed at preventing accidents.
2. Numerical modeling of the interaction between human blood flow and the compliant blood vessel wall, aimed at assessing the probability of aneurysm rupture.

The goal of the research is to conduct fluid–structure interaction studies in the chosen relevant topic, during which topic-specific methodologies and models will be developed and the inherent laws of fluid–structure interactions will be determined.

The doctoral candidate, using advanced computer technologies, will perform socially relevant 3D simulations of the interaction between elastic bodies and fluids, learn and present the obtained research results to the public, participate in international conferences abroad, and expand his/her network of like-minded individuals.

These studies will not only enable us to tackle today's challenges but also provide ample opportunity to broadly enhance the competencies in various fields, such as in the analysis of problems and potential solutions, the application of 3D simulations, and the dissemination of results.

The research team offering these studies has been working in this field for over 10 years and will always be available to help, advise, and motivate when questions arise.

Young researchers who wish to begin doctoral studies in these topics are invited to contact the project's scientific supervisor for further information.

SCIENTIFIC SUPERVISOR:

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