

Projekt 4.8. Multiscale Simulation of Break-up droplet dynamics

Supervisor: Dr hab. Piotr Deuar / Dr Panagiotis Theodorakis

Institute: IFPAN

Unit: ON5 - Theoretical Physics

Webpage of group: <https://sites.google.com/view/theodorakisgroup/home>
<http://www.ifpan.edu.pl/~deuar/>

Background:

Droplet dynamics phenomena, such as droplet coalescence and break-up, are ubiquitous and play an important role in many industrial areas (e.g. spraying). Therefore, it is crucial to understand better these processes and investigate various parameters that control their dynamics. In turn this will lead to the optimization of relevant industrial processes.

Aim:

This project will investigate the break-up of droplets in different scenarios by using multiscale computer simulation methods, leading to a better understanding of this process and in turn ensuring a better design of relevant applications in industry. The PhD student will be involved in the research tasks of this topic and will work closely with other researchers of this project in the frame of a Sonata Bis grant, which includes researchers at Tianjin University where relevant experiments will take place. The PhD student will also have the opportunity to interact with the European consortium ThermaSMART (<https://thermasmart.eng.ed.ac.uk>) exploiting further opportunities.

Requirements:

- Master's degree in Natural Sciences or Engineering
- Good knowledge of a programming language (e.g. Python)
- Good analytical skills
- Experience in simulation or numerical work
- Ability to work as a team and effectively communicate

Salary: grant funding of 5000 PLN per month, before subtracting obligatory employer and employee social security contributions. For 48 months.

Contact: panos@ifpan.edu.pl