

Research, Informatics and Graduate Studies

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PhD Positions in Experimental Fluid Dynamics – Group of Assoc. Prof. Bo Kong(GS-2019009)

The Chemical Engineering Program (group of Bo Kong) is looking for 2 students to conduct experimental research projects in multiphase flows. Contract duration: 3 + 1 years.

Project Details

The huge impact of computational fluid dynamics (CFD) in the industry has been well demonstrated in its widely adoption in industries, such as aerospace and automobile. With the advance of modern computers and the increasing affordability of computing power they provide, conducting numerical experiments through modeling and simulations becomes a more and more attractive alternative to the expensive pilot scale physical experiments in engineering practice. In many cases, especially for single-phase flow, it has become a common practice to directly utilizing CFD to test, optimize and scale-up different application designs. Nevertheless, CFD software for multiphase flows are far from mature, especially when involving with mass and heat transfer and chemical reactions, and many critical research issues remain before they can be routinely and confidently employed for engineering purposes, especially in chemical, oil/gas, pharmaceutical, and food industries.

The Ph.D. students will be responsible for setup and carry out experimental studies using laser-based fluid diagnostic techniques, such as Particle Velocimetry (PIV) and Laser-Induced Fluorescence (LIF), for various multiphase flows, such as gas-solid, gas-liquid, and liquid-liquid flows. The research effort aims to provide high quality experimental data to develop and validate multiphase CFD models, and significantly improve the accuracy and usability of the numerical tools for conducting multiphase flow simulations, which can be used to enhance the design and operation of multiphase flow related chemical engineering processes ultimately. These experimental efforts will be carried out in concert with CFD modeling effort being conducted within our group, to both validate the multiphase flow models and to speed up the design and optimization of various chemical reactors, such as liquid-liquid emulsifiers and gas-liquid atomizers. The successful candidate will possess the ability to plan, initiate, and execute research activities related to experimental studies in the project. The ability to interact and brainstorm with the simulation scientists within the team is essential to success in the position. For further details of the research projects, please contact Prof. Kong.

Keywords

Multiphase Flow (Gas-solid, Gas-liquid, Liquid-liquid flows), Laser-Based Experimental Fluid Diagnostics (Particle Velocimetry, Laser-Induced Fluorescence).

Selection Criteria

- Bachelor/Master's degree in chemical/Mechanical/Aerospace Engineering (essential)
- Strong background in experimental fluid dynamics (preferable)
- Experiences with Lavision® hardware and software (preferable)

Program

Chemical Engineering

Research Area

Experimental Fluid Dynamics

Contacts

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[Web Page Link](#)

Application Deadline

Open till filled

Location

Guangdong Technion – Israel Institute of Technology (GTIIT), China & Technion-Israel Institute of Technology, Haifa

Date Posted

10 Oct., 2019

[Fees & Finance](#)

how to apply

- Strong interest in multiphase flow problems (essential)
- Strong interest in learning and using the state-of-art laser-based fluid diagnosis technics, such as particle velocimetry, laser-induced fluorescence (essential)
- Good communication skills, good command of English (essential)
- Ability to work independently as well as in a team environment (essential)
- Ability to author scientific reports and co-author scientific publications (essential)
- The PhD candidate must fulfill the requirements for admission to the Technion Graduate School and needs to comply with its regulations leading to the Ph.D. degree: <https://graduate.technion.ac.il/en/prospective-students/>