

Research, Informatics and Graduate Studies

<https://sites.gtiit.edu.cn/research/positions/gs-2023002/>

Master Positions in polydispersed multiphase flow experiments and/or simulation (GS-2023002) – Group of Assoc. Prof. Bo Kong

Description

The Chemical Engineering Program (group of Bo Kong) is looking for 2 Master's students to conduct research projects in multiphase flows. Contract duration: 2-3 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 powder 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 objective of this study is to investigate the polydispersed multiphase with both experimental and numerical methods and develop an accurate and comprehensive physics-based model for polydispersed multiphase flows. By using state-of-art fluid-diagnostic techniques, such as stereo-PIV and high-speed imaging, highly spatial-tempo resolved data will be obtained, and further insight into fluid turbulence, particle movement, and particle-particle interaction could be gained. In the meantime, numerical simulations with state of art multiphase flow simulation methods, such as Multi-fluid model, Euler-Lagrangian method, and Quadrature-based moments method, will be conducted in concert with the experiments.

Keywords

Multiphase Flow (particle flow, spray, bubbly flows), CFD simulation, Laser-Based Experimental Fluid Diagnostics (Particle Velocimetry, Laser-Induced Fluorescence), OpenFOAM, Quadrature-based moments method.

Selection Criteria

- Bachelor's degree in Chemical/Mechanical/Aerospace Engineering (essential)
- Strong background in experimental fluid dynamics and/or computational fluid dynamics (preferable)
- Experiences with OpenFOAM and/or Lavisio® hardware and software (preferable)
- Strong interest in multiphase flow problems (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 master candidate must fulfill the requirements for admission to the

Position

Master

Program

Chemical Engineering

Contact

Assoc. Prof. Bo Kong

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[Web Page Link](#)

Application Deadline

Open till filled

Date posted

April 17, 2023

Location

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

Fees & Finance

How to Apply

Technion Graduate School and needs to comply with its regulations leading to the master degree: <https://graduate.technion.ac.il/en/prospective-students/>

Application

- Application deadline: Continuous till filled
- Send required documents electronically to: bo.kong@gtiit.edu.cn

Contact

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