Research, Informatics and Graduate Studies

https://sites.gtiit.edu.cn/research/positions/gs-2023001/

PhD Positions in polydispersed multiphase flow experiments and/or simulations (GS-2023001) – Group of Assoc. Prof. Bo Kong

Description
The Chemical Engineering Program (group of Bo Kong) is looking for 2 PhD student to conduct research projects in polydispersed fluid-particle flows. Contract duration: 3 + 1 years.

Project Details
All the realistic multiphase flow in nature and in industrial applications involves polydispersity, i.e., particles/bubbles/droplets with different sizes and shapes. Different sizes and shapes of particles would have different movements in the fluid, thus inducing heterogeneous spatial distribution of the particles in the flow. The segregation and intermixing of different particles would highly affect the flow property in all aspects of a chemical reactor, such as mass, heat, momentum transfer, and chemical reaction rates. Therefore, a comprehensive understanding of this basic physical phenomenon is essential, whether for the understanding of nature or better design in the industry.

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, CFD simulation, Laser-Based Experimental Fluid Diagnostics (Particle Velocimetry, Laser-Induced Fluorescence), OpenFOAM, Quadrature-based moments method.

Selection Criteria

- Master'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 Lavision® hardware and software (preferable)
- Experience with two-fluid model with kinetic theory for granular flows or the Euler-Lagrangian method. (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 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/

Position
PhD

Program
Chemical Engineering

Contact
Assoc. Prof. Bo Kong

Email: bo.kong@gtiit.edu.cn

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

Application

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

Contact

Assoc. Prof. Bo Kong

Phone: +86 (754) 88077101

Email: bo.kong@gtiit.edu.cn

Web Page : https://sites.gtiit.edu.cn/research/people/bo-kong/