Research, Informatics and Graduate Studies

https://sites.gtiit.edu.cn/research/positions/gs-2021004/

PhD/Master (MSc) Positions in Multiphase Flow Experiment, Simulation, and Application (GS-2021004) – Group of Assoc. Prof. Xi Gao

Position
PhD/Master

Program
Chemical Engineering

Contact
Assoc. Prof. Xi Gao

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Web Page Link

Application Deadline
Open till filled

Date posted
April 6, 2021

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

Fees & Finance

How to Apply

Description

The Chemical Engineering Program (group of Xi Gao), is looking for two PhD/Master candidates to conduct research projects in the experimental and numerical investigation of multiphase flow in chemical reactors and its industrial applications. Contract duration: 2-3 years for Master and 3+1 years for PhD.

(https://www.researchgate.net/profile/Xi-Gao)

Project Details

Multiphase reactors are widely used in the chemical industry, energy, metallurgy, and other industrial applications. To overcome limitations related to the design, optimization, and scale-up of multiphase reactors, it is very important to accurately simulate the complex multiphase flows, which involve multiscale multiphase hydrodynamics, simultaneous heat/mass transfer, and chemical reactions.

The main objective of the project is to (1) understand the multi-scale physical and chemical phenomena such as multiphase flow, heat and mass transfer, chemical reaction, external fields (light, magnetism, etc.) in the multiphase chemical reactors, and their coupling mechanism, (2) construct multi-scale mathematical models or machine-learning (ML) assisted models to simulate the complex multiphase chemical reactor and develop accurate and efficient multiphase computational fluid dynamics (CFD) solver to simulate large-scale industrial reactors.

Keywords

Multiphase Flow; Computational Fluid Dynamics; Chemical Reactor Simulation; Fluidization; Biomass/Coal Thermochemical Conversion; Energy Technologies; Multiscale Simulation; Machine Learning

Selection Criteria

- (PhD program) Master degree (or equivalent) in Chemical Engineering, Mechanical Engineering, Aerospace Engineering, Physics, Applied mathematics or in a relevant engineering discipline (essential)
- (MS program) Bachelor degree in Chemical Engineering, Mechanical Engineering, Aerospace Engineering, Physics, Applied mathematics or in a relevant engineering discipline (essential)
- Strong background in multiphase flow or mathematical modeling (preferable)
- Good communication skills, good command of English (essential)
- Ability to work independently as well as in a team environment (essential)
- Ability to author/co-author high-quality scientific publications (essential)

The PhD/Master candidate must fulfill the requirements for admission to the Technion Graduate School and needs to comply with its regulations leading to the PhD/Master degree: https://graduate.technion.ac.il/en/prospective-students/

Application

- Application deadline: Open till filled
- Send below-required documents electronically to: xi.gao@gtiit.edu.cn

Curriculum vitae; Names of three references; BS/MS degree certificates

Other positions

- The group welcomes self-funded students, CSC Scholarships supported students; visiting students/scholars, salary and benefits will be provided depending on the qualifications of the candidates.
- The group also is hiring research scientists, postdocs, and research assistants. Please contact Asst. Prof. Gao for more information.