

Research, Informatics and Graduate Studies

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PhD/Master (MSc) Positions in Thermofluidics of environmentally benign, alternative zeotropic mixtures (GS-2022009) – Group of Assoc. Prof. Kumaran Kannaiyan

About GTIIT

- Guangdong Technion-Israel Institute of Technology (GTIIT) is a public, state-of-the-art research university in Shantou (Guangdong province), China.
- GTIIT is the first Sino-foreign cooperative university to introduce higher education based on the Technion-Israel Institute of Technology (Technion) model.
- Technion is a prestigious public research university based in Haifa-Israel, well-known for its research innovations.
- Since 2004, three Nobel Prize laureates are from Technion, and it has consistently ranked among the top 50 global research-based universities.
- GTIIT follows similar standards and policies as Technion and aspires to become a reputed cutting-edge research institute in Science and Technology.

Description

Dr. Kumaran Kannaiyan in Mechanical Engineering (Robotics) Program is looking for Ph.D./M.Sc. candidates to conduct research (experimental and/or theoretical) in understanding the thermohydraulic behavior of alternative (environmentally benign) zeotropic mixtures for applications like renewable energy sources, energy recovery solutions, hydrogen production, refrigeration and air-conditioning systems, etc.

- M.sc./Ph.D. candidates will be enrolled in Technion-Israel Institute of Technology.
- Degrees will be offered by Technion-Israel Institute of Technology, Israel.
- Expected Duration:
 - M.Sc.: 2~2.5 years
 - Ph.D.: 3.5~4 years
 - This generally involves one semester in Haifa for a master's degree and two semesters for a PhD degree.
- Fellowships available for both programs. For more details check:
 - <https://graduate.technion.ac.il/en/prospective-students/>
 - <https://sites.gtiit.edu.cn/research/graduate-studies/>

Project Description

With rising global emissions, there has been a considerable shift in energy policies across nations, including China, to achieve a carbon-neutrality. In this context, renewable/low-grade energy sources and secondary energy carriers like hydrogen have received a renewed impetus for a sustainable energy transition. The objective of this research project is broadly aligned with the above theme. To this end, the multiphase thermo-hydraulic behaviour of environmentally benign, alternative zeotropic mixtures will be investigated for a wide range of applications. It is established that zeotropic mixtures have the potential to reduce the irreversible losses in a thermodynamic cycle. But knowledge gaps still exist regarding the critical attributes of zeotropic mixtures and their impact on performance. This research project will evaluate (through thermodynamic analysis and experiments) those attributes to enhance the energy exchange process while limiting their

Position

PhD/Master

Program

Mechanical Engineering (Robotics)

Contact

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[Web Page Link](#)

Application Deadline

Open till filled

Date posted

September 21, 2022

Location

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

Fees & Finance

How to Apply

environmental impact.

Responsibilities will include, but are not limited to, thermodynamic analysis, participation in the design/development of the experimental facility, experimental measurements using advanced research tools, data curation, and publication of research findings in reputed peer-reviewed journals. Students will be encouraged to participate and present their work at international conferences/meetings.

Keywords

Alternative working fluids, Low-GWP, Zeotropic mixtures, Thermodynamic cycles, Thermo-hydraulics, Thermodynamic analysis, Experiments

Selection Criteria

- Ph.D.:
 - Master's degree in Mechanical or any relevant discipline is essential.
 - Background in multiphase flows and/or thermodynamics is preferred.
 - Relevant prior experience with experimental and/or computational skills is essential.
- M.Sc.:
 - Bachelor's degree in Mechanical Engineering or relevant discipline is essential.
 - Relevant prior experience with experimental and/or computational skills is preferred.
- Good communication skills in English (essential). Knowledge of the Chinese language will be an advantage.
- Ability to work independently and as a team.
- Ability to author scientific reports/publications.
- Willing to visit/work temporarily at research institutes in China, Israel, and other global locations, if needed.
- The candidate must fulfill the requirements for admission to the Technion Graduate School and needs to comply with its regulations leading to the Ph.D./M.Sc. degree: <https://graduate.technion.ac.il/en/prospective-students/>

Application

- Application deadline: Open until filled
- Interested candidates can contact Dr. Kumaran Kannaiyan with curriculum vitae electronically: kumaran.kannaiyan@gtiit.edu.cn