

# Research, Informatics and Graduate Studies

<https://sites.gtiit.edu.cn/research/positions/gs-2023008/>

## PhD/Master (MSc) Positions in the Sustainable Energy Technologies Research Group. (GS-2023008) – Group of Assoc. Prof. Kumaran Kannaiyan

### Description

Dr. Kumaran Kannaiyan, in the Mechanical Engineering (Robotics) Program, is looking for multiple Ph.D. / M.Sc. candidates to conduct research (*Experimental / Numerical*) in two research directions:

- Environmentally benign, alternative zeotropic mixtures for energy harvesting applications
- Reacting and Non-reacting studies of alternative fuels (low-carbon/non-carbon) for gas turbine applications.

### Project Details

In the context of global energy transition, renewable/low-grade energy sources and secondary energy carriers like hydrogen have received a renewed impetus for a sustainable energy transition. The research objectives are broadly aligned with the above theme.

- The multiphase thermo-hydraulic behavior of environmentally benign, alternative zeotropic mixtures will be investigated for various applications. Although zeotropic mixtures can potentially enhance operational performance, knowledge gaps still exist in understanding their critical attributes.
- Spray and combustion characteristics of alternative fuels (low-carbon/non-carbon) for gas turbine applications. The knowledge of the combustion characteristics of pure and blends of renewable fuels is still emerging and attracts a lot of interest.

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

Low-GWP, Zeotropic mixtures, Thermodynamic cycles, Thermo-hydraulics, Thermodynamic analysis, Alternative Fuels, Combustion Diagnostics.

### 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 a relevant discipline

### Position

PhD/Master

### Program

Mechanical Engineering (Robotics)

### Contact

Assoc. Prof. Kumaran Kannaiyan

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[kumaran.kannaiyan@gtiit.edu.cn](mailto:kumaran.kannaiyan@gtiit.edu.cn)

[Web Page Link](#)

### Application Deadline

Open till filled

### Date posted

December 26, 2023

### Location

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

### Fees & Finance

How to Apply

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](mailto:kumaran.kannaiyan@gtiit.edu.cn)