

Research Fellow (Emission Control of Ammonia
Combustion)
Nanyang Technological University

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Posted Nov. 6, 2025, set to expire May 6, 2026

Job Title	Research Fellow (Emission Control of Ammonia Combustion)
Department	Energy Research Institute @ NTU
Institution	Nanyang Technological University Singapore, , Singapore
Date Posted	Nov. 6, 2025
Application Deadline	Open untill filled
Position Start Date	Available Immediately
Job Categories	Research Scientist/Associate
Academic Field(s)	Mechanical Engineering
Job Website	https://ntu.wd3.myworkdayjobs.com/Careers/job/NTU-Main-Campus-Singapore/Research-Fellow--Emission-Control-of-Ammonia-Combustion-_R00022483
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Apply By Email	
Job Description	

Established in 2010, the Energy Research Institute @ NTU (ERI@N) is a pan-university research institute that focuses on systems-level research for tropical megacities. It performs translational research that covers the energy value chain from generation to innovative end-use solutions, motivated by industrialisation and deployment. ERI@N has multiple Interdisciplinary Research Programmes which focus on translational Research, Development & Deployment which focus on specific area of the

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energy value chain, and a number of Living labs and Testbeds which facilitate large scale technology deployment enabling validation and demonstration of real-world applications.

For more details, please view <https://www.ntu.edu.sg/erian>

The Energy Research Institute @ NTU (ERI@N) is seeking to hire research fellow to support the works on Emission Control of Ammonia Combustion. The job scope of the manpower is to conduct combustion experiments in constant volume combustion chamber; establish experimental databases for ammonia, hydrogen, and hydrocarbon fuels; perform emission formation pathways analyses by simulation software; explore the application of low-emission ammonia combustion methods.

Key Responsibilities:

Responsible for advancing high-fidelity modelling of ammonia-based multi-fuel combustion and emission processes with key responsibilities including:

- Validate detailed and skeletal chemical reaction mechanisms against experimental databases on combustion and emission characteristics.
- Develop and apply Computational Fluid Dynamics (CFD) models to investigate intermediate reaction pathways and pollutant formation mechanisms in hydrogen–ammonia and hydrocarbon–ammonia systems.
- Deploy high-precision skeletal mechanisms in engine-scale simulations to capture combustion behaviour and pollutant evolution.
- Establish predictive modelling frameworks that describe the chemical evolution of carbon, hydrogen, and nitrogen species during ammonia-based fuel combustion.
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Analyze and quantify pollutant formation pathways, with focus on CO, NO_x, N₂O, and unburned NH₃.

- Generate modelling insights and tools to support the design and optimization of low-emission, ammonia-fueled propulsion technologies.

Job Requirements:

- PhD degree in Mechanical or Vehicle Engineering or the related fields
- 3-year research experience in combustion, emission, or thermofluid modelling.
- Expertise in numerical simulation methods, particularly Computational Fluid Dynamics (CFD) and chemical kinetics modelling.
- Familiarity with detailed and skeletal chemical reaction mechanisms and their application in multi-fuel combustion systems.
- Publication track record is as one reference
- Proficiency in programming tools (e.g., Python, MATLAB, or C++) for data processing and model development is preferred.
- Proficiency in English and good communication capabilities for research work purposes

We regret to inform that only shortlisted candidates will be notified.

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Contact Information

Please reference Academickeys in your cover letter when
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Contact

Singapore