

PhD Position 1: Nanocatalyst design for CO₂ conversion to fuels

School of Materials Science and Engineering

Nanyang Technological University (NTU), Singapore

The KRG Lim lab (<https://krglimlab.github.io/>) at Nanyang Technological University (NTU) is starting in August 2027. We are looking for a highly motivated **PhD candidate** to join our group to work on **nanocatalyst design for CO₂ conversion to fuels**.

Expected Intake: August 2027

Research Area: Nanomaterials, heterogeneous catalysis, colloidal materials

Supervisor: Prof. Kang Rui Garrick Lim (cs-garrick.lim@ntu.edu.sg)

Funding: NTU Research Scholarship, fully funded for 4 years

Project Description:

Why is this project important?

Converting CO₂ directly to fuels is an avenue to abate our CO₂ emissions while producing higher value-added fuels for hard-to-decarbonize transportation sectors and starting chemical feedstocks for chemical manufacturing. Developing nanocatalysts that are active, selective, and stable for CO₂ conversion is the critical enabler for implementation.

What will you achieve in this project?

Design and colloidal **synthesis** of catalytic nanoparticles. Integrating nanoparticles into porous catalytic structures. **Evaluating** these catalysts in fixed bed reactors for CO₂ hydrogenation applications. **Characterization** of catalysts. Establishing a colloidal design-synthesis-characterization-testing feedback loop to improve performance. **Collaborate** with academic and industrial partners to **enhance your work's impact**.

Who are we looking for?

- Bachelor's/Master's in **Materials Science/Chemical Engineering/Chemistry**
- Research background and interest in heterogeneous catalysis, nanomaterials

Application Instructions (Apply from 1 October 2026 – 31 January 2027)

1. Check our lab webpage (<https://krglimlab.github.io/>)
2. Email Prof. Garrick Lim (cs-garrick.lim@ntu.edu.sg) your CV, academic transcript, brief research summary, and contact information of two references
3. Apply at NTU portal (<https://www.ntu.edu.sg/admissions/graduate/radmissionguide>). In your application's proposed faculty, choose "Others" and fill " Prof. Garrick Lim (MSE)".