

Mengyao Gao



Assistant Professor

Department of Chemical Engineering,

National Taiwan University of Science and Technology (NTUST)

No. 43, Section 4, Keelung Rd, Da'an District, Taipei City, Taiwan

Office: E2-400

Tel: 02-2733-3141#7440

Email: mygao@mail.ntust.edu.tw

Webpage: <https://www.mengyaogao.com/>

Education:

PhD (2010-2016)

Materials Science and Engineering, Beijing University of Chemical Technology, Beijing, China.

Jointly Supervised Student (2015-2016)

Chemical Science and Engineering (CSE), Argonne National Laboratory, Chicago, IL, USA.

B.S. (2006-2010)

Polymer Materials and Engineering, Beijing University of Chemical Technology, Beijing, China.

Professional appointments:

National Taiwan University of Science and Technology, Taiwan.

Project Assistant Professor, Department of Chemical Engineering, **2023-present**

National Taiwan University of Science and Technology, Taiwan.

Post-doctoral Research Fellow, Department of Chemical Engineering, **2020-2022**

Lawrence Berkeley National Laboratory, CA, USA.

Post-doctoral Research Fellow, Energy Technologies Area, **2018-2019**

National Taiwan University, Taiwan.

Post-doctoral Research Fellow, Department of Chemical Engineering, **2017-2018**

LausDeo Corporation, Taiwan.

Innovation Investigator, **2016-2017**

Honors and awards:

2026 Fulbright Taiwan Foundation for Scholarly Exchange, Columbia University, USA

2025 Innovative Teaching Model Award (PBL), National Taiwan University of Science and Technology, Taiwan

2025 Teaching Excellence Award, National Taiwan University of Science and Technology, Taiwan

2025 Best Presentation, 14th International Conference on Green Energy and Environment Engineering, Korea

2025 Fulbright Taiwan Foundation for Scholarly Exchange, UC San Diego, USA

2024 EMI Teaching Skills Enhancement Award, National Taiwan University of Science and Technology, Taiwan

Research Areas:

Our research targets energy and sustainability challenges through the development of waste-derived

functional materials and advanced electrochemical technologies. We focus on the valorization of spent lithium-ion batteries for hydrogen generation via dynamically reconstructed catalytic systems, coupled with selective metal leaching and recovery for subsequent reuse. Advanced characterization techniques are employed to elucidate structure, property, and performance relationships and mechanistic evolution during electrochemical operation.

Selective Publications:

1. Jing-Xian Chen, **Mengyao Gao**,* Dessie Ashagrie Tafere, Xiang Mao Huang, Recycling of Spent Lithium-Ion Batteries into Fluorinated Binder-Enabled Electrocatalysts for Efficient Hydrogen Generation Systems, **2026**, *Adv. Sustain. Syst.* (DOI: 10.1002/adsu.202501679, Status: accepted)
2. Xiang-Mao Huang, Jing-Xian Chen, Dessie Ashagrie Tafere, Luthfiyyah Annisa Nur Azizah, **Mengyao Gao***, **2025**, Pomegranate-like Nickel-Iron Electrocatalyst Hosted on Shrimp Shell-Derived Carbon for Efficient Alkaline Hydrogen Evolution[J]. *ACS Sustainable Chem. Eng.*, 13(40): 16793-16804. (Featured on the cover of the journal)
3. Xiang-Mao Huang, **Mengyao Gao** *, Dessie Ashagrie Tafere, Shao-Yu Wang, Luthfiyyah Annisa Nur Azizah and Yan-Ling Yang, **2025**, Waste-derived green N-doped materials: mechanistic insights, synthesis, and comprehensive evaluation, *RSC Sustain.*, 3.11 (2025): 5051-5069. (Featured on the cover of the journal)
4. Naiqiang Liu, Siji Wei, Bo Wang, Hong Deng, Xiaoyan Wang, **Mengyao Gao***, **2025**, Untangling the design of single-atom Zn catalyst for superior performance in lithium-sulfur batteries, *J. Energy Storage*, 131: 117636.
5. Aldair Etmar Garcia, Raynard Christianson Sanito, **Mengyao Gao***, Steven S.C. Chuang, Luthfiyyah Annisa Nur Azizah, **2025**. Advances in Non-thermal and Electrochemical CO₂ Conversion Technologies towards Net-zero Emissions[J]. *Clean. Eng. Technol*, 100944.