

Youcheng Wang

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EDUCATION

Shanghai Jiao Tong University (SJTU)

Shanghai, China

Bachelor of Science (B.S.)

Sep. 2021 – Jun. 2025 (expected)

Major: **Chemistry (Zhiyuan Honors Program: Top 10%)**

GPA: 87.71/100

Relevant Coursework: Inorganic Chemistry, Analytical Chemistry, Organic Chemistry, Physical Chemistry, Intermediate Inorganic Chemistry, Fundamentals of Photovoltaics, Python Programming and Introduction to Data Science, Modern Electrochemistry, Polymer Chemistry, Organic Synthesis, Computational Chemistry Theory and Hand-on, Modern Analytical Methods, Organometallic Chemistry, Physical Organic Chemistry, Solid State Chemistry, Quantum Chemistry.

RESEARCH EXPERIENCES

Layer-by-Layer Fabrication of Porphyrin-Containing MOF Films for Photocatalytic CO₂ Conversion

Research intern, Northwestern University, Evanston, IL, US

Jun. 2024 – Present

Supervisor: **Prof. Joseph T. Hupp**

- Developed LbL fabrication methods for diverse MOF films, enhancing photocatalytic CO₂ conversion efficiency.
- Investigation of exciton transport distances in various MOF films to optimize photocatalytic efficiency.
- Evaluation of CO₂ conversion efficiency in different MOF films.
- Exploration of photocatalytic CO₂ reduction mechanism by in situ study and theoretical calculations.

Synthesis of Azulene-Based Two-Dimensional Coordination Polymers

Research assistant, Zhangjiang Institute of Advanced Study, SJTU, Shanghai, China

Jul. 2023 – Jun. 2024

Supervisor: **Prof. Xiaodong Zhuang** and **Prof. Xinliang Feng**

- Designed two-armed and three-armed monomers with azulene and end-capped isocyano groups.
- Synthesis of monomers, polymers and polymer films in solution and/or at interfaces.
- Studied the crystalline structures and optoelectronic properties of the polymers.
- Interfacial polymerization towards single-atom-thick polymer films in LB trough.
- Device level understanding: Hall effect, electrochemical properties, in situ study, etc.

Synthesis of Two-dimensional Rhodium-isocyanide Frameworks

Research assistant, Zhangjiang Institute of Advanced Study, SJTU, Shanghai, China

Sep. 2023 – Jun. 2024

Supervisor: **Prof. Xiaodong Zhuang**

- Synthesized three 2D metal-carbon based MOFs designated as SJTU-201, SJTU-202, SJTU-203.
- Analyzed the catalytic activity of Nitrogen reduction reaction.
- Powder XRD analysis and simulated structures of synthesized 2D MOFs.

Performance optimization of bulk interfacial composite superionic conductors

Research assistant, Shanghai Jiao Tong University, Shanghai, China

Feb. 2023 – Feb. 2024

Supervisor: **Prof. Liwei Chen**

- Fabricated conducting thin films using a simultaneous electrospin/electrospray method.
- Explored diverse film compositions with varying organic and inorganic phases.
- Conducted performance tests on the fabricated superionic conductors within solid-state batteries.

DFT Analysis of Diels-Alder Reaction Catalyzed by Chiral Amine Catalysts

Research assistant, Shanghai Jiao Tong University, Shanghai, China

Sep. 2023 – Jan. 2024

Supervisor: **Prof. Liang Wu**

- Constructed molecular models of substrates, catalysts, and products.

- Identified transition states and calculated IRC paths.
- Analyzed energy profiles and selectivity, comparing with experimental data.

SKILLS & INTERESTS

- **Synthesis:** Schlenk line operation, Column chromatography, Layer-by-Layer method, Electrospin/electrospray method, Microwave assisted synthesis, Recrystallization.
- **Instrument:** Powder X-ray Diffraction, Mass Spectroscopy, Infrared Spectrometer, UV-vis spectrum, Fluorescence Spectroscopy, GC, HPLC, NMR, TGA/DSC, Cyclic Voltammetry, etc.
- **Software:** Microsoft Office, Python, Gaussian 16, Origin, Material Studio, VASP.
- **Research Background and Interests:** Energy storage and conversion, Porous materials, Nanomaterials, DFT.
- **Life interests:** Running, Photography, Video Editing, etc.

TEACHING EXPERIENCES

Shanghai Jiao Tong University, Shanghai, China

Teaching Assistant of Organic Chemistry Course

Sep. 2023 – Jan. 2024

- Helped students in the coursework of Organic Chemistry.
- Corrected assignments, assisted the teacher with the test questions and marked the exam papers

PUBLICATION

Huang, S., Yan, P., Han, Z., Wu, H., **Wang, Y.**, Zhang, J., Yuan, L., Fu, S., Wen G., Bonn, M., Wang, H., Cao, K. and Zhuang X., 2024. "Two-dimensional Rhodium-isocyanide Frameworks", *Nature Materials* (Manuscript under review).

INTERNSHIP EXPERIENCE

Northwestern University

Evanston, IL, US

Research Intern

Jun. 2024 – Mar. 2025

- Researched MOF thin-film catalysts for photocatalytic CO₂ reduction.
- Collaborated on a review of MOF-based solid-state electrolyte.

HONORS & AWARDS

Zhiyuan Honors Scholarship: Awarded to the top 10% of honors students. (for three consecutive years) *2021 - 2024*

SJTU Outstanding Scholarship: Awarded to the top 20% of students at SJTU (for two consecutive years) *2021 - 2023*

University-level Excellent Member: Awarded to 2 students per class each year *2021 - 2022*

ADDITIONAL ACTIVITIES

Leadership Experiences:

- *Class Committee members, SJTU Zhiyuan College* *Sep. 2023 - Present*
- *Leader, SJTU Summer Social Practice* *Jun. 2022 – Aug. 2022*

Volunteer Experiences:

- *Shanghai Half Marathon* *Apr. 2023*
- *Shanghai International Marathon* *Nov. 2022*

Assistant Manager

- Instrument Analysis Center *Feb. 2024 – Jun. 2024*