

Tianyi (Sean) Zhang
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EDUCATION

University of California, Los Angeles, California 2025 - Present
Ph.D. in Chemical Engineering (Advisor: Prof. Philippe Sautet)

Carleton College, Minnesota 2021 - 2025
B.A. in Chemistry and Mathematics, GPA: 3.78

Study Abroad Program

Budapest Semester in Mathematics, Budapest, Hungary Fall 2024
Introduction to Deep Learning, Theory of Computing, Mathematics of Network Science,
Abstract Algebra

SKILLS

- Computational Chemistry: VASP, VESTA
- Computational Models: Machine Learning, Reinforcement Learning, Deep Learning
- Programming Languages: Python, Java, C++, Julia
- Data Analysis Skills: Data Scraping
- Languages: Chinese (native), English (fluent)

RESEARCH EXPERIENCE

The Carter Group, Princeton University, Princeton Plasma Physics Laboratory
Prof. Emily A. Carter & Dr. John Mark Martirez (PI)
Summer Research Assistant Summer 2024

- ❖ Operating density functional theory (DFT) calculations to compare the stability of various metal atom arrangements in Olivine.
- ❖ Characterized the effect of explicit water molecules at the low-index facets of olivine.
- ❖ Currently evaluating the performance of Crystal Graph Convolutional Neural Networks (CGCNN) in predicting the surface energies of olivine facets.

Drew's Lab, Carleton College Prof. Steven Drew (PI)
Research Student September 2022 - June 2025

- ❖ Constructed a photoelectrochemical apparatus for characterizing electrochemical deposition of thin film semiconductor materials composed of Fe, Cr, and Al mixed metal oxide.
- ❖ Working on the electrochemical deposition of thin film semiconductor materials composed of Fe, Cr, and Al mixed metal oxide.
- ❖ Characterizing thin film with the apparatus including SEM, EDS and PEC devices.
- ❖ Currently investigating the effect of composition on the photoelectrochemical performance of films and examining the electron-hole pair recombination process in films with varying layer thicknesses.

Ginsberg Group, UC Berkeley

Prof. Naomi S. Ginsberg (PI)

Summer Research Assistant

Summer 2023

- ❖ Benchmarked the initiation of the non-photochemical quenching (NPQ) in biological samples across diverse light and chemical environments.
- ❖ Worked with a team of researchers to study the interplay between thylakoid membrane architecture and energy distribution with time-resolved interferometric scattering microscopy (stroboSCAT).

GIS Lab, Carleton College

Dr. Wei-Hsin Fu (PI)

Lab Assistant

January - August 2022

- ❖ Collaborated with a team of researchers to analyze and georeference hundreds of old pictures taken in China with high precision using ArcGIS software.
- ❖ Provided site recommendations for a local garbage disposal company based on spatial analysis.

PRESENTATIONS

Zhang, T.; Carter, E. A.; Martinez, J. M. P. Evaluation of the Stability of the Surfaces of Olivine (MgFeSiO_4) Using First-Principles Atomic-Scale Simulations. *Princeton Plasma Physics Laboratory Student Poster Fest*, Princeton, NJ, 2024.

Zhang, T.; Hart, S.; Hamerlynck, L.; Iwai, M.; Ginsberg, N. Unraveling the Initiation of NPQ in Biological Samples Across Diverse Light and Chemical Environments. *STROBE SURS Poster Session*, Berkeley, CA, 2023.

AWARDS & FUNDS

Carleton College Career Center Travel Grant (\$500)

Fall 2024

Trustee Endowed Internship Fund (\$5,850)

Summer 2024

STROBE SURS Fund (\$6,000)

Summer 2023

TEACHING EXPERIENCE

Chemistry Department Grader

January 2024 - 2025

Grader for Quantum Chemistry, Organic Chemistry I, and Principles Chemistry I & Lab.

Chinese Department Language Assistant

September - November