Songela W. Chen

songela@berkeley.edu

EDUCATION

University of California, Berkeley 2022–
PhD Student, Physical Chemistry
Advisor: David T. Limmer

Massachusetts Institute of Technology 2015–2019
SB Chemistry, minor in Chinese
Advisor: Adam P. Willard
Thesis: Modeling ion mobility in solid-state polymer electrolytes

EXPERIENCE

D. E. Shaw Research 2019–2022
Scientific Associate
Improve methods to predict protein-ligand binding free energy for computational drug discovery applications.

Willard Group, MIT 2017–2019
Undergraduate Research Assistant
Model ion mobility in solid-state polymer electrolytes using coarse-grained molecular dynamics simulations.

D. E. Shaw Research Summer 2018
Intern
Develop enhanced sampling methods to compute binding free energies of protein-protein complexes.

Drennan Lab, MIT January–September 2017
Undergraduate Research Assistant
Characterize glycyl radical enzymes prominent in the human gut microbiome using X-ray crystallography.

D. E. Shaw Research Summer 2016
Early College Intern
Optimize Hamiltonian tempering schemes for molecular dynamics simulations of protein-ligand systems.

Hu Lab, University of Pittsburgh 2011–2014
Volunteer
Investigate effect of omega-3 polyunsaturated fatty acids on microglial responses to myelin pathology in murine cell cultures.

PUBLICATIONS

3. Development of a Force Field for the Simulation of Single-Chain Proteins and Protein-Protein Complexes.
   Piana S, Robustelli P, Tan D, **Chen S**, Shaw DE.
   J Chem Theory Comput 16, 2494–2507 (2020).

2. n-3 PUFA supplementation benefits microglial responses to myelin pathology.
   Chen S, Zhang H, Pu H, Wang G, Li W, Leak RK, Chen J, Liou AK, Hu X.
   Sci Rep 4, 7458 (2014).

1. Microglia/Macrophage Polarization Dynamics Reveal Novel Mechanism of Injury Expansion After Focal Cerebral Ischemia.
   Hu X, Li P, Guo Y, Wang H, Leak RK, **Chen S**, Gao Y, Chen J.
   Stroke 43, 3063 (2012).

SERVICE

Northeast Regional Middle School Science Bowl 2015–2019

Assistant Director

Organize a daylong quiz bowl event for middle school teams from five states. Contact potential sponsors, train volunteers for Science Bowl specific roles, and maintain website. Co-founder of the first Science Bowl competition run entirely by students in the nation.

MIT ClubChem 2015–2018

President

Manage all aspects of the undergraduate association for chemistry students, including chemistry outreach events at K-8 schools, club presentation at USA Science and Engineering Fair in Washington, DC, and intra-department activities for chemistry majors.

SKILLS

Computational	Molecular dynamics simulations, Python, Git, Linux, LaTeX, HTML, CSS, Java
Laboratory	X-ray crystallography, protein purification, SDS-PAGE, ELISA, cell culture

AWARDS

NSF Graduate Research Fellowship Program Honorable Mention	2022
MIT Freshman Chemistry Achievement Award	2016