

Shiqi Chen

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EDUCATION:

University of Chicago, Department of Chemistry	Chicago, IL
Ph.D. in Physical Chemistry	9/2018 – Present
M.S. in Physical Chemistry	9/2018 – 3/2020
Advisors: Prof. Norbert F. Scherer and Prof. Andrew L. Ferguson	
Peking University, College of Chemistry and Molecular Engineering	Beijing, China
B.S. in Materials Chemistry	9/2014 – 6/2018
Advisor: Prof. Hong Jiang	
B.S. in Mathematics and Applied Mathematics	9/2015 – 6/2018

TEACHING EXPERIENCE:

University of Chicago, Department of Chemistry	Chicago, IL
Head Teaching Assistant of Honors General Chemistry (Chem 122)	1/2023 – 3/2023
Head Teaching Assistant of Comprehensive General Chemistry (Chem 112)	1/2022 – 3/2022
Teaching Assistant of Physical Chemistry Chemical Kinetics (Chem 263)	3/2020 – 6/2020
Teaching Assistant of Introductory General Chemistry (Chem 101-102)	9/2019 – 3/2020
Teaching Assistant of Honors General Chemistry (Chem 121-123)	9/2018 – 6/2019
Peking University, College of Chemistry and Molecular Engineering	Beijing, China
Teaching Assistant of Chemistry Today	9/2016 – 12/2016

RESEARCH INTERESTS:

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- Development of techniques to control and design optical matter system
 - Machine Learning methods
 - Power dissipation and entropy production (rate) of non-conservative systems
 - Non-equilibrium statistical mechanics of driven systems

KEY SKILLS:

Programming Languages	Python, Pascal, C, C++
Research Software:	Quantum Espresso, VASP, Matlab, MiePy (Scherer lab & Github)

PUBLICATIONS:

Peer-reviewed Publications

1. **Shiqi Chen**, Curtis W. Peterson, John A. Parker, Stuart A. Rice, Andrew L. Ferguson, and Norbert F. Scherer, “Data-driven reaction coordinate discovery in overdamped and non-conservative systems: application to optical matter structural isomerization”, *Nature Commun.* **12**, 1 (2021).
2. **Shiqi Chen**, John A. Parker, Curtis W. Peterson, Stuart A. Rice, Norbert F. Scherer, and Andrew L. Ferguson, “Understanding and design of non-conservative optical matter systems using Markov state models”, *Mol. Syst. Des. Eng.* **7**, 1228 (2022)

Upcoming Publications

3. **Shiqi Chen**, Emmanuel Valenton, Stuart A. Rice, Andrew L. Ferguson, and Norbert F. Scherer, “Mode-dependent power dissipation and entropy production rate of 6-particle Optical Matter Systems” (manuscript in preparation)
4. Yanzeng Li, Rosalind Huang, **Shiqi Chen**, Jumanah AlMalki, Emmanuel Valenton, Spoorthi Nagasamudram, Stuart A. Rice, and Norbert F. Scherer, “Negative Brownian vortex dynamics of nanoparticles with optical magnetic dipolar resonances” (manuscript in preparation)
5. **Shiqi Chen**, Stuart A. Rice, Andrew L. Ferguson, and Norbert F. Scherer, “Comparison of correlation between optical matter collective modes and far-field scattering angular modes to Raman scattering activity” (work in progress).
6. **Shiqi Chen**, John Parker, Curtis Peterson, Stuart A. Rice, Andrew L. Ferguson and Norbert F. Scherer, “Pseudo-rotation dynamics in 8-particle optical matter systems”, (work in progress).

RESEARCH EXPERIENCE:

University of Chicago, Department of Chemistry

Chicago, IL

Graduate Student Researcher,

9/2018 – Present

Advisors: Prof. Norbert F. Scherer and Prof. Andrew L. Ferguson

- Understanding and design of non-conservative optical matter systems using Markov state models
- Discovery of data-driven reaction coordinate in overdamped and non-conservative systems
- Power dissipation and entropy production rate calculation for optical matter systems
- Comparison of correlation between optical matter collective modes and far-field scattering angular modes to Raman scattering activity

University of California, Davis, Department of Chemistry

Davis, CA

Research Assistant, Advisor: Prof. Davide Donadio

7/2017 – 8/2017

- Investigation of the strain effect in thermoelectric efficiency of silicon membrane

Peking University, College of Chemistry and Molecular Engineering

Beijing, China

Research Assistant, Advisor: Prof. Hong Jiang

6/2016 – 7/2018

- Theoretical studies of various bimetallic catalysts for dry reforming of methane
- Applications and anisotropisation of self-consistent dielectric dependent hybrid functional

AWARDS & ACTIVITIES:

- Otto H. & Valerie Windt Memorial Fellowship, University of Chicago, US (2023)
- Yanhong Li Scholarship, Peking University, China (2017)
- Merit Student of Distinction, Peking University, China (2017)
- Merit Student, Peking University, China (2015, 2016)
- National Scholarship, Peking University, China (2015, 2016)