

Chenghao Zhang

General Information

Name: Chenghao Zhang

Gender: Male

Birthplace: Wenzhou, Zhejiang, China

Email: cz38@illinois.edu

EDUCATION

Peking University

Beijing, China

B.S. Department of Physics

Sep. 2015- Jul. 2019

Advisor: Prof. Yuhai Tu & Prof. Qi Ouyang

GPA 3.68/4

University of Illinois, Urbana-Champaign

Urbana, IL, USA

Ph.D. Department of Physics

Aug. 2019 – Jan. 2024

Advisor: Prof. Martin Gruebele

GPA 3.92/4.00

RESEARCH EXPERIENCE

Peking University, Department of Physics

Beijing, China

Project: Investigating energy constraint of accurate spatial orientation in biosystem

Advisor: Prof. Yuhai Tu & Prof. Qi Ouyang

Aug. 2018 – Jul. 2019

University of Illinois, Urbana-Champaign, Department of Physics

Urbana, IL, USA

Project: Large scale simulation of Quantum energy flow between molecular fragments

Advisor: Prof. Martin Gruebele and Prof. Edwin Sibert

Jul. 2020 - Jan. 2021

Project: Quantum Information scrambling and out of time ordered correlation functions (OTOCs) in molecular systems.

Advisor: Prof. Martin Gruebele and Prof. Peter Wolynes

Sept. 2020 – Dec. 2023

Projects: Surface crossing and energy flow in many dimensional quantum systems

Advisor: Prof. Martin Gruebele, Prof. David E. Logan and Prof. Peter Wolynes

Aug. 2022 – Jan. 2023

AWARDS AND HONORS (Selected)

- Mavis Future Faculty Fellow University of Illinois, Urbana-Champaign 2023 - 2024
- Grad Travel Award University of Illinois, Urbana-Champaign 2022
- IBM-Zerner Graduate Student Award 61st Sanibel Symposium 2022
- University Fellowship University of Illinois, Urbana-Champaign 2021, 2022
- Excellent Graduate Peking University 2019
- Award for Academic Excellent Peking University 2016 -2017
- Cyrus Tang Scholarship Peking University 2015 - 2017

PUBLICATIONS

† Equal contribution

1. Chenghao Zhang, Edwin L. Sibert III and Martin Gruebele, “A phase diagram for energy flow limited reactivity”, *J. Chem Phys.* **154**, 104301 (2021)

2. C. Zhang, P. G. Wolynes, and M. Gruebele, *Quantum Information Scrambling in Molecules*, *Phys. Rev. A* **105**, 033322 (2022).

3. C. Zhang, M. Gruebele, D. E. Logan, and P. G. Wolynes, *Surface Crossing and Energy Flow in Many-Dimensional Quantum Systems*, *Proc. Natl. Acad. Sci. U.S.A.* **120**, e2221690120 (2023)

4. D. Zhang[†], C. Zhang[†], Q. Ouyang, and Y. Tu, *Free Energy Dissipation Enhances Spatial Accuracy and Robustness of Self-Positioned Turing Pattern in Small Biochemical Systems*, *Journal of The Royal Society Interface* **20**, 20230276 (2023).

PRESENTATIONS

- “Quantum Information Scrambling in Molecules”
61st Sanibel Symposium, St Simons Island, GA, February 2022 (Poster)
- “Quantum Information Scrambling in Molecules”
APS March Meeting 2022, Chicago, IL, March 2022 (Talk)
- “A phase diagram for energy flow limited reactivity”
75th International Symposium on Molecular Spectroscopy, Urbana, IL, Jun. 2022 (Talk)
- “Quantum Information scrambling in Molecules”
75th International Symposium on Molecular Spectroscopy, Urbana, IL, Jun. 2022 (Talk)
- “Reaching the Bound for Quantum Information Scrambling of Reactions”
APS March Meeting 2023, Las Vegas, Nevada, March 2023 (Talk)
- “Surface crossing and energy flow in many dimensional quantum systems”
76th International Symposium on Molecular Spectroscopy, Urbana, IL, Jun. 2023 (Talk)