

Shengzhe Li

EDUCATION

Sichuan University

Department of Chemistry, Major in Chemistry

Department of Physics, Major in Physics

Chengdu

Sep. 2019 – Jun. 2021

Sep. 2021 – Jun. 2024

- GPA: 3.75/4.0
- Average Grade: 88.95/100
- Rank 14/103

Tsinghua University (Hsin-chu)

Department of Physics, Exchange Student

Hsin-chu

Sep. 2023 – Jan. 2024

Core Courses: Theoretical Mechanics, Electrodynamics, Quantum Mechanism, Thermodynamics and Statistical Physics, Atomic Physics, Optics, Method of Mathematical Physics, Computational Physics.

Advanced Courses: Advanced Quantum Mechanics, Solid State Physics, Group Theory and Lie Algebra, Introductory Particle Physics and String Theory, General Relativity.

RESEARCH EXPERIENCE

Dynamical Phase Trasitions in the Kinouchi Copelli Neuronal Network

Undergraduate Research Assistant

Tsinghua University (Hsin-chu)

Sep. 2023 – Jan. 2024

Supervisor: Prof. Hsiu-Hau Lin

1. Theoretical Analysis Using Mean-Field Method:

- Calculated the critical point of a fully-connected neuronal network, emphasizing the role of high branching ratios.
- Explored the network's propensity for a second-order phase transition leading to collective synchronicity.

2. Numerical Simulations Using Monte Carlo Methods:

- Conducted simulations to validate theoretical predictions and analyze network behavior near the critical point.
- Compared theoretical results with simulation data, focusing on synchronicity and phase transition dynamics.

3. Analysis of Synchronicity Excitations in the Frequency Domain:

- Investigated the frequency domain characteristics of spontaneous synchronicity excitations.

4. Outcome:

- Contributed new insights into the collective dynamics of neuronal networks and their phase transitions.

AWARDS AND STUDENT EVENTS

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| 1. Second Prize of National Mathematics Competition for University Students (Provincial Region) | Mar 2023 |
| 2. Advanced Individual in "Student Hometown Exploration" University Publicity Programme | Jan 2020 |
| 3. Single-Item First-Class Scholarship , Sichuan University | 2019-2020 |
| 4. Outstanding Volunteer in Physical Fitness Test, Sichuan University | 2020 Fall |
| 5. Outstanding student , Sichuan University | 2020-2021 |
| 6. Scholarship for Yan Ji-Ci Class , Institute of Physics, Chinese Academy of Sciences | 2020-2022 |

TECHNICAL SKILLS

Languages: Mandarin(Native), English(IELTS: 7.0)

Skills: Office(Excel, Word, PPT), Python, Linux, Mathematica