Miao Chen

Graduate Student in Physics | School of Physics and Astronomy, Beijing Normal University
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Research Interests

Non-equilibrium statistical physics; phase transitions; information thermodynamics

Education

M.Sc. in Theoretical Physics, Beijing Normal University, Beijing, China Sep.2024–present
Advisor: Prof. Yu-Han Ma GPA: 3.8/4

B.Sc. in Physics, Jiangxi Normal University, Nanchang, China Sep.2020–Jun.2024
Advisor: Prof. Hui-Huang Chen GPA: 90/100 Honor: Outstanding Graduate

Publications

1. **Miao Chen***, Xiu-Hua Zhao*, and Yu-Han Ma, "Coercivity Landscape Characterizes Dynamic Hysteresis," ***Physical Review Letters*** **136**, 117102 (2026), ***Editors' Suggestion***
2. **Miao Chen**, Xiu-Hua Zhao, and Yu-Han Ma, "Finite-time and finite-size scalings of coercivity in dynamic hysteresis," *Physical Review E* **113**, 034124 (2026).
3. Wanyan Chen*, **Miao Chen***, and Yu-Han Ma, "Finite-Time Thermodynamics of an Autonomous Information Machine," *arXiv:2604.15953* (2026).
4. **Miao Chen** and Hui-Huang Chen, "Rényi entanglement asymmetry in (1+1)-dimensional conformal field theories," *Physical Review D* **109**, 065009 (2024).
5. **Miao Chen** and Qin Guo, "Theoretical Study and Visualization of the Winding Problem," *College Physics* **43**(4), 65–68, 80 (2024). [in Chinese]

** denotes equal contribution.*

Research Experience

School of Physics and Astronomy, Beijing Normal University Dec. 2023–present
Advisor: Prof. Yu-Han Ma

- Developed a coercivity-landscape framework to characterize finite-time and finite-size scaling behaviors in dynamic hysteresis using renormalization techniques.
- Performed Kinetic Monte Carlo simulations of the two-dimensional Ising model in driven systems.
- Studied finite-time thermodynamics and performance trade-offs in information machines.

Department of Physics, Jiangxi Normal University Feb. 2023–Jun. 2024
Advisor: Prof. Hui-Huang Chen

- Investigated symmetry breaking and entanglement-related quantities in conformal field theories.
- Implemented numerical tests of CFT predictions using exactly solvable lattice models.

Teaching Experience

- Teaching Assistant, University Physics at BNU, 2025.
- Teaching Assistant, Advanced Mathematics at JXNU, 2021-2023.

Conferences

International Conference on Statistical Physics (29th) Florence, Italy.
Poster: Coercivity Panorama of Dynamic Hysteresis Jul. 13–18, 2025
Progress in Quantum Machine Learning (2026) Beijing, China.
Poster: Coercivity Landscape Characterizes Dynamic Hysteresis May 10, 2026
National Conference on Magnetics Theory (20th) Hangzhou, China.
Talk: Coercivity Landscape Characterizes Dynamic Hysteresis May 22–25, 2026