Haotian WEI

Ph.D. Candidate, 6+ yrs Theoretical Quantum Scientist
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EDUCATION

Ph. D. in Physics, Rice University, *Houston, TX* — Exp. May 2026
M. Sc. in Physics, Rice University, *Houston, TX* — Dec 2024
B.Sc. in Physics, Fudan University, *Shanghai, China* — Jun 2020
- Outstanding Graduate of Class 2020

Visiting Student, University of California, *Berkeley, CA* — Aug - Dec 2017

RESEARCH EXPERIENCE

Doctoral Researcher, *Rice University, Houston, TX* — Jun 2021 - Present
Advisor: Dr. Kaden Hazzard
Research Assistant, *Fudan University, Shanghai, China* — Sep 2018 – Jun 2020
Advisor: Dr. Yang Qi

PUBLICATIONS

Highlights: 6 papers **| 280+** citations **| 70+** media coverages **| 3** Editors' Suggestions | Nat. Phys,, PRL, Sci. Adv.
Google Scholar: scholar.google.com/citations?user=mu--7-UAAAAJ

- **Hao-Tian Wei**, Eduardo Ibarra-García-Padilla, Michael L. Wall, and Kaden R. A. Hazzard. "Hubbard Parameters for Programmable Tweezer Arrays" *Physical Review A [Editors' Suggestion]* **109**, 013318 (2024).
- Dasom Kim, Sohail Dasgupta, Xiaoxuan Ma, Joong-Mok Park, **Hao-Tian Wei**, Liang Luo, Jacques Doumani, Xinwei Li, Wanting Yang, Di Cheng, Richard HJ Kim, Henry O Everitt, Shojiro Kimura, Hiroyuki Nojiri, Jigang Wang, Shixun Cao, Motoaki Bamba, Kaden RA Hazzard and Junichiro Kono. "Observation of the magnonic Dicke superradiant phase transition" *Science Advances [Featured in news]* **11**, eadt1691 (2025).
- Zoe Z. Yan, Benjamin M. Spar, Max L. Prichard, Sungjae Chi, **Hao-Tian Wei**, Eduardo Ibarra-García-Padilla, Kaden R. A. Hazzard, and Waseem S. Bakr. "Two-Dimensional Programmable Tweezer Arrays of Fermions" *Physical Review Letters [Editors' Suggestion] [Featured in news]* **129**.123201 (2022).
- Shintaro Taie, Eduardo Ibarra-García-Padilla, Naoki Nishizawa, Yosuke Takasu, Yoshihito Kuno, **Hao-Tian Wei**, Richard T. Scalettar, Kaden R. A. Hazzard, and Yoshiro Takahashi. "Observation of Antiferromagnetic Correlations in an Ultracold SU(N) Hubbard Model" *Nature Physics [Featured in news]* **18**.1356–61 (2022).
- Ibarra-García-Padilla, Eduardo, Sohail Dasgupta, **Hao-Tian Wei**, Shintaro Taie, Yoshiro Takahashi, Richard T. Scalettar, and Kaden R. A. Hazzard. "Universal Thermodynamics of an SU(N) Fermi-Hubbard Model" *Physical Review A [Editors' Suggestion]* **104**.043316 (2021).
- Yuan Da Liao, Han Li, Zheng Yan, **Hao-Tian Wei**, Wei Li, Yang Qi, and Zi Yang Meng. "Phase Diagram of the Quantum Ising Model on a Triangular Lattice under External Field" *Physical Review B* **103**.104416 (2021).

PROFESSIONAL SKILLS

Programming Languages: Python (NumPy/SciPy/PyTorch/Qiskit/vLLM), C/C++, MATLAB, Mathematica & Julia
Algorithms: Variational Quantum Algorithms, Optimization, Tensor Network, Matrix Diagonalization (Arnoldi/Lanczos), Monte Carlo, Numerical Analysis, Data Correlation Analysis, Regression, Deep Neural Networks, LLM
Expertise in Quantum Hardware: Neutral Atom, Ion Traps, Superconducting Qubits
Application Skills: High-performance computing (HPC), Git workflow, data visualization (Matplotlib/Inkscape), MySQL
GitHub Profile: github.com/htwei17

- *Pymanopt (***800+★**) – extended core functionality of Riemannian manifold optimizer
- *HubbardTweezer* – individually created and maintain gate-engineering toolkit of next-gen neutral atom quantum hardware

Languages: English (fluent), Chinese Mandarin (native)
Interests: Linguistics (phonetics/phonology), Saxophone

LEADERSHIP & OUTREACH

Physics & Astronomy Graduate Student Association (PAGSA), Rice University, *Houston, TX* — Jun 2022 – Jun 2024
- Treasurer & Journal club coordinator

Academic Reviewer, Physical Review X**,** Physical Review Letters, Physical Review Applied, Physical Review A&B — Aug 2024 - Present
- Reviewed 10+ top scientific articles

APS March Meeting 2023, *Las Vegas, NV* — Mar 2023
- Chaired a session in the world's largest physics conference with 14,000+ attendees