

Haotian WEI

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

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EDUCATION

Ph. D. in Physics , Rice University, <i>Houston, TX</i>	Exp. May 2026
M. Sc. in Physics , Rice University, <i>Houston, TX</i>	Dec 2024
B.Sc. in Physics , Fudan University, <i>Shanghai, China</i>	Jun 2020
• Outstanding Graduate of Class 2020	
Visiting Student , University of California, <i>Berkeley, CA</i>	Aug - Dec 2017

RESEARCH EXPERIENCE

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

PUBLICATIONS

Highlights: 7 papers | 290+ citations | 70+ media coverages | 3 Editors' Suggestions | Nat. Phys., PRL, Sci. Adv.

Google Scholar: scholar.google.com/citations?user=mu--7-UAAAAJ

- Zheyuan Li, Rupsa De, Rishi Sivakumar, William Huie, **Hao-Tian Wei**, Justin D. Piel, Chris H. Greene, Kaden R. A. Hazzard, Zoe Z. Yan, Jacob P. Covey. “Quantum science with arrays of metastable helium-3 atoms” arXiv:2601.06763 (2026).
- 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**, ead1691 (2025).
- **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).
- 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) , <i>Rice University, Houston, TX</i>	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	

- Chaired a session in the world's largest physics conference with 14,000+ attendees