

Jixun K. Ding

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Education and Work

- 2024 – now **University of Pennsylvania**
Postdoctoral scholar, supervised by Martin Claassen
- 2018 – 2024 **Stanford University**
PhD in Applied Physics, supervised by Tom Devereaux
Thesis title: *Strongly correlated electrons in a magnetic field: numerical studies of the Hubbard-Hofstadter model*
- 2014 – 2018 **Cornell University**
BA in Physics with a minor in Mathematics, *summa cum laude*

Publications and Preprints

- 2024 J. K. Ding, E. Z. Zhang, W. O. Wang, T. Cookmeyer, B. Moritz, Y. B. Kim, and T. P. Devereaux, *Intrinsic thermal Hall effect in Mott insulators*, [arXiv:2410.14863](https://arxiv.org/abs/2410.14863).
- 2024 J. K. Ding, L. Yang, W. O. Wang, Z. Zhu, C. Peng, P. Mai, E. W. Huang, B. Moritz, P. W. Phillips, B. E. Feldman, and T. P. Devereaux, *Particle-hole asymmetric ferromagnetism and spin textures in the triangular Hubbard-Hofstadter model*, *Phys. Rev. X* **14**, 041025.
- 2023 W. O. Wang, J. K. Ding, E. W. Huang, B. Moritz, and T. P. Devereaux, *Quantitative assessment of the universal thermopower in the Hubbard model*, *Nat. Commun.* **14**, 7064.
- 2023 W. O. Wang, J. K. Ding, Y. Schattner, E. W. Huang, B. Moritz, and T. P. Devereaux, *The Wiedemann-Franz law in doped Mott insulators without quasiparticles*, *Science* **382**, 1070-1073.
- 2022 J. K. Ding, W. O. Wang, B. Moritz, Y. Schattner, E. W. Huang, and T. P. Devereaux, *Thermodynamics of correlated electrons in a magnetic field*, *Commun. Phys.* **5**, 204.
- 2022 W. O. Wang, J. K. Ding, B. Moritz, E. W. Huang, and T. P. Devereaux, *Magnon heat transport in a two-dimensional Mott insulator*, *Phys. Rev. B* **105**, L161103.
- 2021 E. W. Huang, W. O. Wang, J. K. Ding, T. Liu, F. Liu, X.-X. Huang, B. Moritz, and T. P. Devereaux, *Intertwined states at finite temperatures in the Hubbard model*, *J. Phys. Soc. Jpn.* **90**, 111010.

- 2021 W. O. Wang, J. K. Ding, B. Moritz, Y. Schattner, E. W. Huang, and T. P. Devereaux, *Numerical approaches for calculating the low-field DC Hall coefficient of the doped Hubbard model*, [Phys. Rev. Research **3**, 033033](#).
- 2020 W. O. Wang, J. K. Ding, B. Moritz, E. W. Huang, and T. P. Devereaux, *DC Hall coefficient of the strongly correlated Hubbard model*, [npj Quantum Mater. **5**, 51](#).
- 2018 R. D. Porter, T. Arias, P. Cueva, J. K. Ding, D. L. Hall, M. Liepe, D. A. Muller, N. Sitaraman, *Update on Nb₃Sn Progress at Cornell University*, [IPAC 2018](#).
- 2017 J. K. Ding, D. L. Hall, and M. Liepe, *Simulations of RF field-induced thermal feedback in niobium and Nb₃Sn cavities*, [SRF 2017](#).

Invited Talks

- Feb 2024 University of California, Santa Barbara
- Feb 2024 University of Michigan, Ann Arbor
- Feb 2024 University of Pennsylvania
- Aug 2023 QSQM All-hands Meeting

Contributed Talks

- Mar 2024 Particle-hole asymmetric ferromagnetism and spin textures in the triangular Hubbard-Hofstadter model, APS March Meeting
- Jan 2024 A primer to composite fermions, Stanford Condensed Matter Journal Club
- Mar 2023 Quantum Hall ferromagnetism and skyrmions in the Hubbard-Hofstadter model, APS March Meeting
- Nov 2023 Quantum Hall skyrmions – from field theory to experimental detection, Stanford Condensed Matter Journal Club
- Mar 2020 Hall conductivity in the Hubbard model from determinant quantum Monte Carlo, APS March Meeting (Zoom)

Posters

- May 2023 Quantum Hall ferromagnetism in the Hubbard-Hofstadter model, Gordon Research Conference and Seminar: Topological and Correlated Matter
- Jan 2023 Thermodynamics of correlated electrons in a magnetic field, MagLab Theory Winter School
- Jul 2022 Transport in the Hubbard model: critically examining the cuprates, M²S Conference

Honors and Awards

- 2022 M²S Conference Poster Prize

- 2018 Yennie Prize (Cornell University)
- 2018 Frank and Rosa Rhodes Scholarship (Cornell University)

Research Mentorship

- 2024 – now Wyndham White (University of Pennsylvania, Physics and Astronomy PhD)
- 2024 – now Rebekah Jin (Stanford University, Applied Physics PhD)
- 2024 Malhar Kute (Stanford University, Materials Science and Engineering PhD)
- 2024 Rong Zhang (Stanford University, Applied Physics PhD)

Service and Outreach

- Oct 2023 *Short introduction to condensed matter physics* for Stanford Physics, Identity, and Equity program
- 2019 – 2021 Mentoring Master and Camping Czar for Stanford Graduate Students in Applied Physics and Physics (GSAPP)
- 2016 – 2018 Peer advisor for Cornell Society of Physics Students

Other Professional Activity

- Feb 2025 KITP Conference: Harnessing Quantum-optical Techniques in Solid-state Materials (attendee)
- Feb 2025 KITP Program: Quantum Optics of Correlated Electron Systems
- Jun 2024 Gordon Research Conference: Correlated Electron Systems
- Sep 2023 KITP Conference: Electron Correlations beyond the Quasiparticle Paradigm: Theory and Experiment (attendee)
- Sep 2023 KITP Program: Quantum Materials With and Without Quasiparticles (affiliate)
- Aug 2023 Argonne Training Program on Extreme-Scale Computing (attendee)
- Jun 2022 International Summer School on Computational Quantum Materials (attendee)

Relavant Skills

- Programming languages C, C++, Python
- Software tools openMP, MPI, slurm, bash, HDF5, CUDA