

JUNKAI DONG

337 Lyman Hall, Harvard University
(+1)6073795651 \diamond junkaidong@g.harvard.edu

EDUCATION

Harvard University

August 2021 - Present

Doctor of Philosophy

Major: Physics

Advisor: Ashvin Vishwanath

Cornell University

August 2017 - May 2021

Bachelor of Arts, Summa cum Laude.

Majors: Physics, Math

GPA: 4.174/4.3

Senior Thesis: *Averaging over deformed WZW models*

HONORS AND AWARDS

- Purcell Fellowship, Harvard University, 2021
- Shou-Cheng Zhang Fellowship, Stanford University, 2021 (Declined)
- First-year Fellowship, MIT, 2021 (Declined)
- Donald R. Yennie Prize in Physics, Cornell University, 2021
- Bethe Thesis Prize in Physics, Cornell University, 2021

MANUSCRIPTS

9. J. Dong, J. Wang, P. J. Ledwith, A. Vishwanath, and D. E. Parker, “Composite Fermi Liquid at Zero Magnetic Field in Twisted MoTe_2 ”, *arXiv:2306.01719*.
8. Q. Gao, J. Dong, P. J. Ledwith, D. E. Parker and E. Khalaf, “Untwisting moiré physics: Almost ideal bands and fractional Chern insulators in periodically strained monolayer graphene”, *Phys. Rev. Lett.* **131**, 096401 (2023). *arXiv:2211.00658*. (PRL cover)
7. J. Dong, P. J. Ledwith, E. Khalaf, J. Y. Lee and A. Vishwanath, “Many-Body Ground States from Decomposition of Ideal Higher Chern Bands: Applications to Chirally Twisted Graphene Multilayers”, *Phys. Rev. Research* **5**, 023166 (2023). *arXiv:2210.13477*.
6. J. Dong, J. Wang and L. Fu, “Dirac electron under periodic magnetic field: Platform for fractional Chern insulator and generalized Wigner crystal”, *arXiv:2208.10516*.
5. J. Dong, T. Hartman and Y. Jiang, “Averaging over moduli in deformed WZW models”, *J. High Energ. Phys.* **2021**, 185 (2021). *arXiv:2105.12594*.
4. J. Dong, V. Juricic and B. Roy, “Topoelectric circuits: Theory and construction”, *Phys. Rev. Research* **3**, 023056 (2021). *arXiv:2008.11202*.
3. J. Dong, V. Elser, G. Gyawali, K. Y. Jee, J. Kent-Dobias, A. Mandaiya, M. Renz and Y. Su, “Glass phenomenology in the hard matrix model”, *J. Stat. Phys.* **2021**(9), 093302 (2021). *arXiv:1912.07558*.
2. J. Dong and E. Mueller, “Exact Topological Flat Bands from Continuum Landau Levels”, *Phys. Rev. A* **101**, 013629 (2020). *arXiv:1910.08429*.
1. J. Dong, Y. Chen, D. Xu and Z.-Q. Yin, “Greenberger-Horne-Zeilinger test for multi-dimension and arbitrary time nodes entangled histories”, *Sci. Bull.* **62**(18), pp.1235-1238 (2016). *arXiv:1610.04296*.

PRESENTATIONS

- *Composite Fermi Liquid at Zero Magnetic Field in Twisted MoTe_2* , Invited Talk, Special AEP Seminar, Cornell University, August 2023.
- *Composite Fermi Liquid at Zero Magnetic Field in Twisted MoTe_2* , Poster, Princeton Summer School on Condensed Matter Physics 2023, Princeton University, July 2023.
- *Composite Fermi Liquid at Zero Magnetic Field in Twisted MoTe_2* , Invited Talk, Thouless Institute for Quantum Matter Seminar, University of Washington Seattle, June 2023.
- *Exact Many-Body Ground States from Decomposition of Ideal Higher Chern Bands: Applications to Chirally Twisted Graphene Multilayers*, Poster, Spring 2023 meeting of the Simons Collaboration on Ultra-Quantum Matter, CU Boulder, CO, May 2023.
- *Exact Many-Body Ground States from Decomposition of Ideal Higher Chern Bands: Applications to Chirally Twisted Graphene Multilayers*, Talk, APS March Meeting, 2023.
- *Exact Many-Body Ground States from Decomposition of Ideal Higher Chern Bands: Applications to Chirally Twisted Graphene Multilayers*, Poster, National High Magnetic Field Laboratory Theory Winter School, FL, Jan 2023.
- *Exact Many-Body Ground States from Decomposition of Ideal Higher Chern Bands: Applications to Chirally Twisted Graphene Multilayers*, Invited Talk, Quantum Matter in Mathematics and Physics, Center of Mathematical Sciences and Applications, Harvard University, MA, Dec 2022.
- *Exact Topological Flat Bands from Continuum Landau Levels*, Poster, ARO/AFOSR MURI Program Review Meeting, UMass Amherst, MA, Oct 2019.

TEACHING EXPERIENCE

Teaching Fellow, Fall 2023

Held sections and office hours for PHYSICS 195A (Solid State Physics).

Teaching Assistant, Fall 2019

Held one-hour study halls for PHYS 7651 (Quantum Field Theory 1) every week.

Teaching Assistant, Fall 2020

Graded homework and answers questions online for PHYS 7681 (Quantum Information Processing).

SKILLS

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| <i>Languages</i> | Chinese (native), English (fluent) |
| <i>Software</i> | Julia, bash, MATHEMATICA, Powerpoint, \LaTeX |