

ETHAN HUECKER

Department of Physics, University of Florida
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RESEARCH INTERESTS

Unconventional superconductivity, topological phases of matter, effective field theories of Fermi surfaces.

EDUCATION

University of Florida <i>PhD Physics</i>	2023 - Present
University of Florida <i>MS Physics</i>	2023 - 2025
University of Cincinnati <i>BS Physics</i>	2019 - 2023

PUBLICATIONS

- **E. Huecker**, Y. Wang, *Vestigial d-wave charge-4e Superconductivity from Bidirectional Pair Density Waves*, *Phys. Rev. B* **113**, 045121 (2026).
- **E. Huecker**, Y. Komijani, *Spin fractionalization in a Kondo-lattice superconductor heterostructure*, *Phys. Rev. B* **108**, 195120 (2023).

TEACHING EXPERIENCE

Teaching Assistant, University of Florida

- *PHY 2048*, a first semester calculus-based physics course. Spring 2026
- *PHY 2053*, a first semester algebra-based physics course. Fall 2025
- *PHY 2053L/2048L*, first semester algebra/calculus-based physics labs. 2023 - 2025

Supplemental Review Session Leader, University of Cincinnati 2021 - 2023
Instructor for MATH 1096, a companion course for calculus 1 and 2, applied calculus.

Math and Science Support Tutor, University of Cincinnati 2021 - 2023
One-on-one tutoring in introductory physics, calculus 1 and 2, and multivariable calculus.

PRESENTATIONS

Talks

- *Vestigial d-wave charge-4e Superconductivity from Bidirectional Pair Density Waves*, APS March Meeting, Mar 2026.
- *Spin fractionalization in a Kondo Lattice Heterostructure*, APS March Meeting, Mar 2023.

Posters

- **E. Huecker**, Y. Wang. *Vestigial d-wave charge-4e Superconductivity from Bidirectional Pair Density Waves*, Quantum Geometry and Moiré Materials Workshop, University of Florida, November 2025

AWARDS AND SCHOLARSHIPS

CCMS Graduate Fellowship for research in condensed matter physics from UF Physics	2024
Physics Scholarship for academic performance from UC Physics	2022
Junior Achievement Award for third year research performance from UC Physics	2022

ADDITIONAL EXPERIENCE

Undergraduate Research Assistant , University of Cincinnati	2022 - 2023
<ul style="list-style-type: none">• Developed and analyzed a theoretical model for a Kondo lattice superconductor heterostructure permitting fractionalized spin-excitations. Advised by Dr. Yashar Komijani.• Investigated the production of scalar leptoquarks from dilepton scattering events using MadGraph collision generation software. Advised by Dr. Conor Henderson.	

TECHNICAL SKILLS

Programming Languages	MATLAB, Python, C++
Software & Tools	Mathematica, LaTeX, ROOT, MadGraph

SCIENCE OUTREACH

- Reviewer, 2026 Florida STEM Symposium Dec 2025
- Organizer, UF Physics Graduate Student and Postdoc Seminar Series 2025 - Present
- Organizer, UF Physics Graduate Community 2025 - Present
- Secretary, UC Society of Physics Students 2022 - 2023

Informal Talks

- *Vestigial Orders: From Pair Density Waves to Charge-4e Superconductivity*, UF Physics Graduate Student and Postdoc Seminar, Nov 2025.
- *Search for T-Channel Production of Scalar Leptoquarks in Dilepton Events*, UC High Energy Physics Group Meeting, Jun 2023.

WORKSHOPS ATTENDED

- Quantum Geometry and Moiré Materials Workshop, *University of Florida*. Nov 2025
- Joint ICTP-WE Heraeus School and Workshop on Advances in Quantum Matter, *Abdus Salam International Centre for Theoretical Physics, Trieste, Italy*. Aug 2025
- Maglab Theory Winter School 2025, *National High Magnetic Field Laboratory, Tallahassee, Florida*. Jan 2025

PROFESSIONAL MEMBERSHIPS

Graduate Member, American Physical Society	2023 - Present
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