

# David Green

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## Positions Held

### North Carolina State University

*Raleigh, North Carolina*

POSTDOCTORAL RESEARCH SCHOLAR

*Jul. 2025 - Present*

- Mentor: Dr. Corey Jones

## Education

### The Ohio State University

*Columbus, Ohio*

PH.D. IN MATHEMATICS

*Aug. 2019 - May 2025*

- Advisor: Dr. David Penneys
- Thesis Title: "Tannakian formalism for compact semisimple 2-categories"

### The University of Texas

*Austin, Texas*

B.S. IN MATHEMATICS

*Aug. 2016 - May 2019*

- Williams Award winner for outstanding undergraduate performance

## Research Interests

Quantum algebra, tensor and fusion categories, Hopf monoidal categories and reconstruction, multi-fusion 2-categories, anyons and condensed matter.

## Published Works

- David Green, Yoyo Jiang, and Sean Sanford. "Braidings for Non-Split Tambara-Yamagami Categories Over the Reals". In: *Transformation Groups* (Feb. 2026)
- Kyle Kawagoe, Corey Jones, Sean Sanford, David Green, and David Penneys. "Levin-Wen is a Gauge Theory: Entanglement from Topology". In: *Communications in Mathematical Physics* 405.11 (Oct. 2024), p. 266. doi: [10.1007/s00220-024-05144-x](https://doi.org/10.1007/s00220-024-05144-x)
- David Green, Peter Huston, Kyle Kawagoe, David Penneys, Anup Poudel, and Sean Sanford. "Enriched string-net models and their excitations". In: *Quantum* 8 (Mar. 2024), p. 1301. doi: [10.22331/q-2024-03-28-1301](https://doi.org/10.22331/q-2024-03-28-1301)
- Jessica M. Christian, David Green, Peter Huston, and David Penneys. "A lattice model for condensation in Levin-Wen systems". In: *Journal of High Energy Physics* 2023 (2023)

## Preprints & Drafts

- David Green. *Tannaka-Krein reconstruction for fusion 2-categories*. 2023. arXiv: [2309.05591](https://arxiv.org/abs/2309.05591) [math.CT]

## Honors & Awards

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|------------|---|
| 2019–2025  | <b>Dean's Distinguished University Fellowship</b> , OSU Graduate School                                   |
| 2023, 2024 | <b>Special Graduate Assignment</b> , OSU Math Department  |
| 2022       | <b>Tibor Rado Research Semester</b> , OSU Math Department   |
| 2022       | <b>Distinguished First-Year Graduate Teaching Award</b> , OSU Math Department (For Fall 2021 performance) |

## Teaching

- Teaching Associate for Calculus I (Fall 2021)
- Head Instructor for Elements of Calculus (Fall 2025)
- Head Instructor for Introductory Linear Algebra (Spring 2026)

## Selected Presentations

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### Tannaka-Krein Reconstruction for Fusion 2-categories

GIVEN ON SEVERAL OCCASIONS, SOME SELECTED BELOW:

- Anomalology Unseminar. (Online, November 2023)
- BIRS Conference on Subfactors and Fusion 2-categories. (Banff, Alberta December 2023)
- Atlantic Category Theory Seminar. (Online, January 2024)
- Topology, Representation theory and Higher Structures. (Isle of Skye, June 2024)
- BIMSA TQFT & Higher Symmetries seminar (Online, October 2024)
- IU Quantum Algebra and Quantum Topology seminar (Bloomington Indiana, October 2024)
- Hopf 2025 Conference (Brussels, Belgium, April 2025)

### Levin-Wen is a Gauge Theory

- USC Quantum Algebra seminar. (Los Angeles, California, November 2024)
- Quantum groups, tensor categories and quantum field theory (Oslo, Norway, January 2025)

### Other Presentations

(COMPLETE LIST OF PRESENTATIONS AVAILABLE UPON REQUEST)

- *Braidings on Non-Split Tambara-Yamagami Categories over the reals*. IU Quantum Algebra and Quantum Topology seminar (Bloomington Indiana, October 2024)
- *Algebras in (Braided) Monoidal 2-categories*. (AMS Spring Western Sectional Meeting, May 2024)

## Other activities

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### Ohio State Directed Reading Program

MENTOR

- Mentored four students.
- Completed projects available in the OSU Math DRP Annals.

### Ohio State Taekwondo Club

PRESIDENT, SENIOR INSTRUCTOR

*Jun 2022 - May 2025*

- Served as President 2022-23 academic year.
- Member of senior instructional staff and primary competition coach June 2022 - May 2025.

### OSU Quantum Student Council

MEMBER

*Fall 2023 - May 2025*

- Founding member of the organization.
- Organized opportunities for learning and networking for all students in the Ohio State Center for Quantum Information Science and Engineering.