

Jackson Van Dyke

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Education

University of Texas, Austin
Ph.D. in Mathematics (in progress)

Fall 2019 - Spring 2024

University of California, Berkeley
B.A. in Mathematics
Honors thesis title: Non-sectorial gluing of Fukaya categories

Fall 2015 - Spring 2019

Positions and appointments

Technical University of Munich, Postdoctoral Researcher

Fall 2024 - Spring 2027

Publications

1. Jackson Van Dyke. Projective symmetries of three-dimensional TQFTs, 2023. arXiv: 2311.01637 [math.QA]
2. Jackson Van Dyke. Symmetries of quantization of finite groupoids, 2023. arXiv: 2312.00117 [math.QA]
3. David Ben-Zvi and Jackson Van Dyke. **Book:** *Between electric-magnetic duality and the Langlands program*. In preparation, 2023. Available: utexas.edu/users/vandyke/notes/langlands_sp21/langlands.pdf
4. Antonio Alfieri and Jackson Van Dyke. An introduction to knot Floer homology and curved bordered algebras. *Periodica Mathematica Hungarica*, 80(2):211–236, 2020

Other publications:

1. A. Schmäh, N. Buechel, S. Garrett, M. Lomnitz, X. Sun, J. Van Dyke, J. Xu, and J. Zhang. Radiation Hardness Test of Eljen EJ-500 Optical Cement. *ArXiv e-prints*, March 2017
2. J. Van Dyke, L.A. Bernstein, and R. Vogt. Parameter optimization and uncertainty analysis of FREYA for spontaneous fission. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 922:36 – 46, 2019

Invited Talks

1. Geometric Representation Theory Seminar - UC Berkeley
Equivariant Projective TQFTs November 5, 2025
2. Twinned workshop on "Quantum Field Theory and Topological Phases via Homotopy Theory and Operator Algebras" - Max Planck Institute, Bonn
Moduli spaces of projective 3d TQFTs July 7, 2025

3. Journées de topologie quantique - Paris/Dijon, FR May 26, 2025
The moduli space of projective 3D TQFTs
4. Scottish Talbot On Algebra and Topology September 23, 2024
Extension theory of fusion categories
5. University of Hamburg, Research seminar - algebra and mathematical physics September 17, 2024
Anomalies, gauging, and moduli spaces of TQFTs
6. University of Lisbon, TQFT seminar (online) July 31, 2024
Geometric quantization, fusion categories, and Rozansky–Witten theory
7. Technical University of Munich July 8, 2024
Projective TQFTs
8. Perimeter Institute July 6, 2023
An analogue of the spin extension for fusion categories
9. Simons Collaboration on Global Categorical Symmetries April 24, 2023
Topological symmetries and the Drinfeld center
10. Academia Sinica (Taipei, Taiwan) Representation Theory Seminar March 24, 2022
Projectivity, polarization, and a higher Weil representation
11. UC Davis Sr. Geometry/Topology Seminar April, 2022
Spin/Metaplectic extensions for finite 3-dimensional TFTs

Honors and Awards

- **Frank Gerth III Dissertation Award** (UT Austin) Spring 2024
- **John and Anne Crawford Scholarship** (UT Austin) Fall 2021-Spring 2022
- **Frank Gerth III teaching excellence awards** (UT Austin) Fall 2019-Spring 2020
- **NSF Graduate Research Fellowship Program - Honorable Mention** Spring 2020
- **Dean’s Honors List - College of Letters and Science** (UC Berkeley) Spring 2018-2019
- **International Dean’s Summer Scholarship** (University College London) Summer 2017

Advising and Mentoring

- **Jurek Bleischwitz** - M.A. student 2025
- **Directed Reading Program:**
UT Austin Spring 2020-Fall 2021, Fall 2022
- **Sunday Morning Math Group Coordinator:**
UT Austin Spring 2021-Fall 2021
The Sunday Morning Math Group (SMMG) is a UT sponsored outreach program aimed at junior high and high school students. I organized and hosted eight public “general sessions” for the community each semester, as well as the “American Math Contest” and “American Invitational Mathematics Examination” (over 600 total exams). I also spoke during a general session in Spring 2022.

Teaching Experience

Graduate prelim course grader:

University of Texas, Austin

Algebra I

Fall 2022, Fall 2023

This preliminary course for graduate students covers group theory, as well as rings and modules. I held office hours, graded assignments, and prepared solutions for the students.

Assistant instructor (IBL format):

University of Texas, Austin

Topology I

Fall 2020, Spring 2022

This course implemented the **inquiry based learning (IBL)** method. This is a successful contemporary teaching technique which is particularly well-represented at UT. **My responsibilities included:** independently holding class over Zoom and in person, grading exams, and managing an IBL-style in-class discussion.

Teaching assistant:

University of Texas, Austin

Multivariable Calculus, Series, Sequences

Fall 2019, Spring 2020

My responsibilities included holding recitation, writing and administering quizzes, grading assignments and exams, and holding office hours.

Undergraduate Student Instructor:

University of California, Berkeley

Calculus, ODEs, Linear Algebra

Fall 2018

My responsibilities included holding recitation, writing and administering quizzes, grading assignments and exams, and holding office hours.

Summer Program in Nuclear Physics:

University of Oslo, Oslo, Norway

May 2017

I helped develop the curriculum for, and teach a course concerning the physics of nuclear fission and our ability to model it.

Service

Conferences organized

Workshop on Gray Products and Lax Constructions

TUM Akademiezentrum Raitenhaslach

February 24 - 27, 2025

Website

Seminars organized

Jr. Geometry Seminar Organizer

UT Austin

Spring 2021

Jr. Geometry and String Theory Seminar Organizer

UT Austin

Fall 2022