

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

Publications

1. Jackson Van Dyke. Projective symmetries of three-dimensional tqfts, 2023. arXiv: 2311.01637 [math.QA]
2. Jackson Van Dyke. Twice-categorified integral transforms and projective symmetries. *In preparation*, 2023
3. David Ben-Zvi and Jackson Van Dyke. **Book:** *Between electric-magnetic duality and the Langlands program*. In preparation, 2023. Available online at 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

Physics publications:

1. A. Schmah, 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. Perimeter Institute
An analogue of the spin extension for fusion categories July 6, 2023
2. Simons Collaboration on Global Categorical Symmetries
Topological symmetries and the Drinfeld center April 24, 2023
3. Academia Sinica (Taipei, Taiwan) Representation Theory Seminar
Projectivity, polarization, and a higher Weil representation March 24, 2022
4. UC Davis Sr. Geometry/Topology Seminar
Spin/Metaplectic extensions for finite 3-dimensional TFTs April, 2022

Honors and Awards

- **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

Teaching Experience

Graduate prelim course grader: Algebra I
University of Texas, Austin 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): Topology I
University of Texas, Austin 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: Multivariable Calculus, Series, Sequences
University of Texas, Austin Fall 2019, Spring 2020
My responsibilities included holding recitation, writing and administering quizzes, grading assignments and exams, and holding office hours.

Undergraduate Student Instructor: Calculus, ODEs, Linear Algebra
University of California, Berkeley 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

Jr. Geometry Seminar Organizer
UT Austin Spring 2021

Jr. Geometry and String Theory Seminar Organizer
UT Austin 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.

Directed Reading Program:
UT Austin Spring 2020-Fall 2021, Fall 2022