

# Ian A. Sullivan

Ph.D. Student  
University of California, Davis  
Department of Mathematics

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## Research Interests

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I am interested in low-dimensional topology, Khovanov/Floer homology theories, and exotic 4-manifolds and knotted surfaces.

## Education

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<b>September 2021 - Present</b>	<b>University of California, Davis</b> Ph.D. in Mathematics Advisors: Melissa Zhang & Eugene Gorsky
<b>September 2017 - June 2020</b>	<b>University of California, San Diego</b> B.S. in Mathematics

## Employment

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<b>September 2021 - Present</b>	<b>University of California, Davis, CA</b> Associate Instructor and Teaching Assistant
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## Papers & Preprints

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3. Q. Ren, I. A. Sullivan, P. Wedrich, M. Willis, M. Zhang, *Khovanov skein lasagna modules with 1-dimensional inputs*, (Preprint 2025)
2. I. A. Sullivan, *Bar-Natan skein lasagna modules and exotic surfaces in 4-manifolds*, (Preprint 2025)
1. I. A. Sullivan, M. Zhang, *Kirby belts, categorified projectors, and the skein lasagna module of  $S^2 \times S^2$* , (Accepted for publication in *Quantum Topology* 2025)

## Invited Talks

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- UT Austin Topology Seminar (October 2025)
- Summer School on Modern Developments in Low-Dimensional Topology, International Centre for Theoretical Physics (Teaching Assistant - June 2025)
- 2025 AMS Spring Western Sectional Meeting - "Knotted surfaces and 4-manifolds"

- Stanford Topology Seminar (April 2025)
- Harvard Topology & Gauge Theory Seminar (April 2025)
- SPECTRA Lavender Seminar (Fall 2024)
- 2024 AMS Fall Sectional Meeting - "Link invariants and surfaces in 4-manifolds" (September 2024)
- 2024 Trisectors Workshop: Connections with Knotted Surfaces; University of Nebraska-Lincoln (June 2024)
- Australian Geometric Topology Webinar (May 2024)
- Graduate Student Topology and Geometry Conference 2024, Michigan State University (April 2024)
- Geometry & Topology Seminar, UC Davis (February 2024)
- Student-Run Research Seminar, UC Davis (November 2023)
- Student-Run Research Seminar, UC Davis (October 2022)

## Outreach and Professional Activities

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- Co-hosted the UC Davis Student Run Research Seminar (2023-2024-2025)
- Directed Reading Program, UC Davis Mathematics Department (2022-2023)  
Undergraduate project on Khovanov homology.
- BAMO Grading Team (March 2023)  
Graded for the 24th annual Bay Area Mathematical Olympiad.
- Directed Reading Program, UC Davis Mathematics Department (2021-2022)  
Undergraduate project on category theory and sheaves.
- Member of the UC Davis Spectra chapter.

## Awards

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- Alice Leung Scholarship in Mathematics (2025)
- L&S Dean Graduate Summer Support Award (2024)

## Teaching Experience

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- **Instructor of record:**
  - Math 16A: Short Calculus (Summer 2022)
- **Teaching Assistant:**
  - Math 150A: Abstract Algebra (Winter 2024)
  - Math 150A: Abstract Algebra (Fall 2023)
  - Math 108: Intro to Abstract Mathematics (Spring 2024)
  - Math 108: Intro to Abstract Mathematics (Winter 2024)