

# ZACHARY WINKELER

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## ACADEMIC POSITIONS

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**Visiting Assistant Professor**, *Smith College*, Northampton, MA Fall 2022 - Present

## EDUCATION

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**Ph.D., Mathematics**, *Dartmouth College*, Hanover, NH Summer 2022

- Advisor: Ina Petkova
- Thesis: Spectral sequences and Khovanov homology

**A.M., Mathematics**, *Dartmouth College*, Hanover, NH Spring 2019

**B.S., Computer Science and Mathematics**, *Northeastern University*, Boston, MA Spring 2017

## PAPERS

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### **Spectral GRID invariants and Lagrangian cobordisms**

(with M. Jubeir, I. Petkova, N. Schwartz, and C.-M. M. Wong)

- Preprint available at arXiv:2303.16130.

### **On the invariance of the Dowlin spectral sequence** (with S. Tripp)

- Preprint available at arXiv:2207.14415.

### **Khovanov homology for links in thickened multipunctured disks**

- To appear in *Michigan Mathematical Journal*.
- Preprint available at arXiv:2106.03834.

## TALKS

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**2023 CMS Summer Meeting** June 2023

- *Computational Aspects in Low-Dimensional Topology and Contact Geometry*

**UMass Amherst Geometry and Topology Seminar** March 2023

**Smith College Math Department Talk** September 2022

**2022 Joint Mathematics Meetings** April 2022

- *AMS Special Session on Knots, Links, 3-manifolds, ... and 4-manifolds, (virtual)*

**Binghamton University Graduate Combinatorics, Algebra, and Topology Conference (BUGCAT)** November 2021

**Dartmouth Topology Seminar** October 2021

**Dartmouth Graduate Student Seminar** (Various Topics) 2019 - 2022

## TEACHING

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**Course Instructor**, *Smith College*, Northampton, MA Fall 2022 - Present

- MTH 333, Topics in Abstract Algebra (Fall 2023)
- MTH 153, Discrete Mathematics (Fall 2022, Spring 2023, Fall 2023)
- MTH 254, Combinatorics (Spring 2023)
- MTH 212, Multivariable Calculus (Fall 2022)

**Course Instructor**, *Dartmouth College*, Hanover, NH

Fall 2019 - Fall 2021

- Math 22, Linear Algebra with Applications (Fall 2021)
- Math 13, Calculus of Vector-valued Functions (Fall 2020)
- Math 1, Introduction to Calculus (Fall 2019)

**Teaching Assistant**, *Dartmouth College*, Hanover, NH

Fall 2017 - Spring 2019

- Math 22, Linear Algebra with Applications (Fall 2017, Spring 2019)
- Math 11, Accelerated Multivariable Calculus (Fall 2018)
- Math 13, Multivariable Calculus (Winter 2018)

**Teaching Assistant**, *Northeastern University*, Boston, MA

Fall 2014 - Spring 2017

- CS 7805, Theory of Computation (Spring 2017)
- CS 3800, Theory of Computation (Spring 2016)
- CS 2510, Fundamentals of CS II (Spring 2015)
- CS 2500, Fundamentals of CS I (Fall 2014)

## PROGRAMS ATTENDED

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<b>2023 CMS Summer Meeting</b> , <i>University of Ottawa</i> , Ottawa, ON	June 2023
<b>Discrete Math Workshop</b> , <i>Smith College</i> , Northampton, MA	May 2023
<b>Nearly Carbon Neutral Geometric Topology Conference (NCNGT)</b> , ( <i>virtual</i> )	September 2022
<b>Women in Mathematics in New England (WIMIN)</b> , <i>Smith College</i>	September 2022
<b>2022 Joint Mathematics Meetings</b> , ( <i>virtual</i> )	April 2022
<b>Recent Developments in Link Homology</b> , <i>SwissMAP</i> ( <i>virtual</i> )	February 2022
<b>Binghamton University Graduate Combinatorics, Algebra, and Topology Conference (BUGCAT)</b> , ( <i>virtual</i> )	November 2021
<b>Foam Evaluation</b> , <i>ICERM</i> ( <i>virtual</i> )	November 2021
<b>Perspectives on Knot Homology</b> , <i>BIRS</i> ( <i>virtual</i> )	May 2021
<b>QUANtum groups, Categorification, Knot invariants, and Soergel bimodules (QUACKS)</b> , ( <i>virtual</i> )	August 2020
<b>Categorification Learning Seminar</b> , ( <i>virtual</i> )	Summer - Fall 2020
<b>Interactions of Gauge Theory with Contact and Symplectic Topology in Dimensions 3 and 4</b> , <i>BIRS</i> ( <i>virtual</i> )	June 2020, March 2022
<b>Nearly Carbon Neutral Geometric Topology Conference (NCNGT)</b> , ( <i>virtual</i> )	June 2020
<b>Perspectives on Dehn Surgery</b> , <i>ICERM</i>	July 2019

**PROFESSIONAL ACTIVITIES**

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<b>Putnam Competition Supervisor</b> , <i>Smith College</i>	Fall 2022
<b>Topology Reading Seminar (co-organizer)</b> , <i>Dartmouth College</i>	2018 - 2021
<b>LaTeX Workshop (co-organizer)</b> , <i>Dartmouth College</i>	Fall 2018 - Winter 2020
<b>Teaching Seminar</b> , <i>Dartmouth College</i>	Summer 2019

**MENTORING**

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<b>Summer Hybrid Undergraduate Research (SHUR) 2022</b> , <i>Dartmouth College</i>	Summer 2022
<b>Directed Reading Program</b> , <i>Dartmouth College</i>	Winter 2021

**EDUCATIONAL OUTREACH**

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<b>Rainstorm</b> , <i>Learning Unlimited (virtual)</i>	Fall 2020 - Winter 2022
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- If It's Knot Theory Then What Is It? (Summer 2021)
- It's Sort Of Math (Summer 2021)
- How to Win at (Some More) Games (Spring 2021)
- How to Win at (Some) Games (Fall 2020, Spring 2021, Winter 2022)

<b>GIV Summer Math Immersion</b> , <i>University of Vermont</i> , Burlington, VT	Summer 2019 - 2021
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- Partizan Combinatorial Games (Summer 2021, virtual)
- Programming with Circles and Arrows (Summer 2020, virtual)
- Impartial Games (Summer 2019)

<b>Exploring Mathematics 2019</b> , <i>Dartmouth College</i> , Hanover, NH	Summer 2019
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<b>Splash/Waterfall</b> , <i>Northeastern University</i> , Boston, MA	Spring 2014 - 2017
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- How to Count to Infinity (Spring 2017)
- How to Program with Circles and Arrows (Spring 2017)
- How to Add Things that Aren't Really Numbers (Fall 2016)
- How to Beat Your Friends at Tic-Tac-Toe (Fall 2015, Spring 2016)
- A Crash Course in Calculus (Spring 2014)

<b>Let's Get Ready</b> , <i>Let's Get Ready</i> , Boston, MA	Fall 2013 - Spring 2017
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**AWARDS**

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<b>Outstanding Graduate Student Teacher</b> , <i>Dartmouth College</i> , Hanover, NH	Spring 2022
<b>Gridley Fellowship</b> , <i>Dartmouth College</i> , Hanover, NH	Fall 2017 - Spring 2018
<b>Dean's List</b> , <i>Northeastern University</i> , Boston, MA	Fall 2013 - Spring 2017