

ZACHARY WINKELER

<https://zach-winkeler.github.io>

zwinkele@gmail.com

(405) 388-8878

ACADEMIC POSITIONS

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

EDUCATION

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

Spectral GRID invariants and Lagrangian cobordisms

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

- Preprint available at [arXiv:2303.16130](https://arxiv.org/abs/2303.16130).

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

- Preprint available at [arXiv:2207.14415](https://arxiv.org/abs/2207.14415).

Khovanov homology for links in thickened multipunctured disks

- To appear in *Michigan Mathematical Journal*.
- Preprint available at [arXiv:2106.03834](https://arxiv.org/abs/2106.03834).

TALKS

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

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

- MTH 153, Discrete Mathematics (Fall 2022, Spring 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

Nearly Carbon Neutral Geometric Topology Conference (NCNGT), (*virtual*) September 2022

Women in Mathematics in New England (WIMIN), *Smith College* September 2022

2022 Joint Mathematics Meetings, (*virtual*) April 2022

Recent Developments in Link Homology, *SwissMAP* (*virtual*) February 2022

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

Foam Evaluation, *ICERM* (*virtual*) November 2021

Perspectives on Knot Homology, *BIRS* (*virtual*) May 2021

QUAntum groups, Categorification, Knot invariants, and Soergel bimodules (QUACKS), (*virtual*) August 2020

Categorification Learning Seminar, (*virtual*) Summer - Fall 2020

Interactions of Gauge Theory with Contact and Symplectic Topology in Dimensions 3 and 4, *BIRS* (*virtual*) June 2020, March 2022

Nearly Carbon Neutral Geometric Topology Conference (NCNGT), (*virtual*) June 2020

Perspectives on Dehn Surgery, *ICERM* July 2019

UCLA Topology Workshop 2018, *UCLA* January 2018

PROFESSIONAL ACTIVITIES

Putnam Competition Supervisor, *Smith College* Fall 2022

Topology Reading Seminar (co-organizer), *Dartmouth College* 2018 - 2021

LaTeX Workshop (co-organizer), *Dartmouth College* Fall 2018 - Winter 2020

Teaching Seminar, <i>Dartmouth College</i>	Summer 2019
--	-------------

MENTORING

Summer Hybrid Undergraduate Research (SHUR) 2022, <i>Dartmouth College</i>	Summer 2022
--	-------------

Directed Reading Program, <i>Dartmouth College</i>	Winter 2021
--	-------------

- The Curry-Howard Isomorphism

EDUCATIONAL OUTREACH

Rainstorm, <i>Learning Unlimited (virtual)</i>	Fall 2020 - Winter 2022
--	-------------------------

- 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)

GIV Summer Math Immersion, <i>University of Vermont</i> , Burlington, VT	Summer 2019 - 2021
--	--------------------

- Partizan Combinatorial Games (Summer 2021, virtual)
- Programming with Circles and Arrows (Summer 2020, virtual)
- Impartial Games (Summer 2019)

Exploring Mathematics 2019, <i>Dartmouth College</i> , Hanover, NH	Summer 2019
--	-------------

Splash/Waterfall, <i>Northeastern University</i> , Boston, MA	Spring 2014 - 2017
---	--------------------

- 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)

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

AWARDS

Outstanding Graduate Student Teacher, <i>Dartmouth College</i> , Hanover, NH	Spring 2022
--	-------------

Gridley Fellowship, <i>Dartmouth College</i> , Hanover, NH	Fall 2017 - Spring 2018
--	-------------------------

Dean's List, <i>Northeastern University</i> , Boston, MA	Fall 2013 - Spring 2017
--	-------------------------