ZACHARY WINKELER

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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

Khovanov homology for links in thickened multipunctured disks

- Preprint: arXiv:2106.03834

TALKS

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

PROJECTS

Computing knot/tangle invariants (with Samuel Tripp)

- Designed program in Python to compute Ina Petkova's and Vera Vértesi's tangle Floer homology: `https://github.com/samueltripp/tanglefloer`
- Wrote code in Macaulay2 to compute Nate Dowlin's spectral sequence from Khovanov homology to knot Floer homology: `https://github.com/zach-winkeler/khovanov-ss`

TEACHING

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 (Spring 2019)

- Math 11, Accelerated Multivariable Calculus (Fall 2018)

- Math 13, Multivariable Calculus (Winter 2018)

- Math 22, Linear Algebra with Applications (Fall 2017)

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

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, *(virtual)*	June 2020
Perspectives on Dehn Surgery, *ICERM*	July 2019
UCLA Topology Workshop 2018, *UCLA*	January 2018

PROFESSIONAL ACTIVITIES

Topology Reading Seminar (co-organizer), *Dartmouth College*	2018 - 2021
Teaching Seminar, *Dartmouth College*	Summer 2019
LaTeX Workshop (co-organizer), *Dartmouth College*	Fall 2018 - Winter 2020

MENTORING

Summer Hybrid Undergraduate Research (SHUR) 2022, *Dartmouth College*	Summer 2022
Directed Reading Program, *Dartmouth College*	Winter 2021

- The Curry-Howard Isomorphism

EDUCATIONAL OUTREACH

Rainstorm, *Learning Unlimited (virtual)*	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, *University of Vermont*, 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, *Dartmouth College*, Hanover, NH   Summer 2019

Splash/Waterfall, *Northeastern University*, 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, *Let's Get Ready*, Boston, MA   Fall 2013 - Spring 2017

AWARDS

Gridley Fellowship, *Dartmouth College*, Hanover, NH   Fall 2017 - Spring 2018

Dean's List, *Northeastern University*, Boston, MA   Fall 2013 - Spring 2017