

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

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)

- To appear in *Algebraic & Geometric Topology*.
- 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

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

Course Instructor , <i>Smith College</i> , Northampton, MA	Fall 2022 - Present
<ul style="list-style-type: none">• MTH 255, Graph Theory (Spring 2024)• MTH 333, Topics in Abstract Algebra - Category Theory (Fall 2023)• MTH 153, Discrete Mathematics (Fall 2022, Spring 2023, Fall 2023, Spring 2024)• MTH 254, Combinatorics (Spring 2023)• MTH 212, Multivariable Calculus (Fall 2022)	
Course Instructor , <i>Dartmouth College</i> , Hanover, NH	Fall 2019 - Fall 2021
<ul style="list-style-type: none">• 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 , <i>Dartmouth College</i> , Hanover, NH	Fall 2017 - Spring 2019
<ul style="list-style-type: none">• 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 , <i>Northeastern University</i> , Boston, MA	Fall 2014 - Spring 2017
<ul style="list-style-type: none">• 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) , (<i>virtual</i>)	June 2023
2023 CMS Summer Meeting , <i>University of Ottawa</i> , Ottawa, ON	June 2023
Discrete Math Workshop , <i>Smith College</i> , Northampton, MA	May 2023
Nearly Carbon Neutral Geometric Topology Conference (NCNGT) , (<i>virtual</i>)	September 2022
Women in Mathematics in New England (WIMIN) , <i>Smith College</i>	September 2022
2022 Joint Mathematics Meetings , (<i>virtual</i>)	April 2022
Recent Developments in Link Homology , <i>SwissMAP</i> (<i>virtual</i>)	February 2022
Binghamton University Graduate Combinatorics, Algebra, and Topology Conference (BUGCAT) , (<i>virtual</i>)	November 2021
Foam Evaluation , <i>ICERM</i> (<i>virtual</i>)	November 2021
Perspectives on Knot Homology , <i>BIRS</i> (<i>virtual</i>)	May 2021
QUANtum groups, Categorification, Knot invariants, and Soergel bimodules (QUACKS) , (<i>virtual</i>)	August 2020
Categorification Learning Seminar , (<i>virtual</i>)	Summer - Fall 2020

Interactions of Gauge Theory with Contact and Symplectic Topology in Dimensions 3 and 4, <i>BIRS (virtual)</i>	June 2020, March 2022
Nearly Carbon Neutral Geometric Topology Conference (NCNGT), <i>(virtual)</i>	June 2020
Perspectives on Dehn Surgery, <i>ICERM</i>	July 2019
UCLA Topology Workshop 2018, <i>UCLA</i>	January 2018

PROFESSIONAL ACTIVITIES

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

EDUCATIONAL OUTREACH

Rainstorm, <i>Learning Unlimited (virtual)</i>	Fall 2020 - Winter 2022
<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • 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