LIZZIE BUCHANAN

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Hanover, NH 03755

EDUCATION

Dartmouth College Department of Mathematics, Hanover, NH
Ph.D. in Mathematics (Advisor: Vladimir Chernov)   (expected) June 2023
M.A. Mathematics   Nov. 2020

Smith College, Northampton, MA   Sept. 2017 - June 2018
Center for Women in Mathematics Postbaccalaureate Program
(Research Advisors: Patricia Cahn, Ileana Streinu)

Hamilton College, Clinton, NY   June 2015
B.A in Mathematics
B.A in Theatre

PREPRINTS

A pair of Jones polynomial positivity obstructions, 2303.13481 (preprint).

A new condition on the Jones polynomial of a fibered positive link, 2204.03846 (preprint, submitted).

AWARDS

Kenneth P. Bogart Teaching Award   June 2022
Dartmouth College, awarded annually to a fifth-year or rising fourth-year graduate student for
dedication to and excellence in advancing the educational mission of the department.

TEACHING

Instructor of Record
Dartmouth College

Math 22: Linear Algebra with Applications	Spring 2023
Math 8: Calculus of Functions of One and Several Variables	Winter 2022
Math 3: Calculus	Winter 2021

Teaching Assistant
Dartmouth College

Math 8: Calculus of Functions in One and Several Variables	Winter 2020
Math 22: Linear Algebra with Applications	Fall 2019
Math 13: Calculus of Vector-valued Functions	Spring 2019
Math 11: Accelerated Multivariable Calculus	Fall 2018

Smith College

Tutorial sessions for Calculus, Differential Equations, and Linear Algebra	2017 - 2018

TALKS

(* indicates invited speaker)

*AMS Spring Southeastern Sectional Meeting, Georgia Institute of Technology	March 2023
Tech Topology Conference, Georgia Institute of Technology *(lightning talk)*	Dec. 2022
*Australian Geometric Topology Webinar, online *Diagrams of Fibered Positive Links, and their consequences*	Nov. 2022
BUGCAT (Binghamton University Graduate Conference in Algebra and Topology) *Diagrams of Fibered Positive Links, and their consequences*	Nov. 2022
*Nearly Carbon Neutral Geometric Topology Conference, online *The Jones Polynomial of a Fibered Positive Link*	Sept. 2022
WIMIN (Women in Mathematics in New England), Smith College *Pivoting to Positive Links*	Sept. 2022
Grad. Student Conference in Algebra, Geometry, and Topology, Temple University *The Jones polynomial of a fibered positive link*	May 2022
Knots in Washington 49.75, George Washington University *The Jones polynomial of a fibered positive link*	April 2022
Dartmouth College Topology Seminar *Towards an Infinite Family of Almost-alternating knots*	March 2022
Dartmouth College Graduate Student Seminar	Oct. 2021
Smith College Colloquium *Linking Numbers in Dihedral Covers*	May 2018
Hudson River Undergraduate Mathematics Conference, St. Lawrence University *Linking Numbers in Dihedral Covers*	April 2018
Joint Math Meetings, San Diego *Rigidity and the Pebble Game algorithm in 3D.*	Jan. 2018
Smith College Colloquium *Rigidity and the Pebble Game algorithm in 3D.*	Nov. & Dec. 2017

CONFERENCES AND WORKSHOPS ATTENDED

Winter school in singularities and low dimensional topology, Rényi Institute	Jan. 2022
Joint Math Meetings, Boston, MA	Jan. 2022
AMS Fall Eastern Sectional, University of Massachusetts - Amherst	Oct. 2022
Workshop in Geometric Topology, online	June 2022
BUGCAT (Binghamton University Graduate Conference in Algebra and Topology)	Nov. 2021
paraDIGMS (Diversity in Graduate Mathematical Sciences) Fall session	Oct. 2021
Mini-Workshop "Knots + More"	Aug. 2021
paraDIGMS (Diversity in Graduate Mathematical Sciences) Spring session	April 2021
Roots of Topology workshop, University of Chicago	June 2018
Hudson River Undergraduate Mathematics Conference, St. Lawrence University	April 2018

OUTREACH AND SERVICE

Directed Reading Program, Dartmouth College   Winter 2023
Mentor to an undergraduate student in knot theory

WIMIN Conference, Smith College   Sept. 2022
Panelist, Graduate school panel

Graduate Program Committee Liaison, Dartmouth College   2020-2022
Graduate student-elected liaison between math graduate students and math faculty members

Math Department Climate Survey Committee, Dartmouth College   2021-2022
Graduate student representative for math department in Dartmouth sciences division discussion of survey results on departmental work environment

Exploring Mathematics Camp, Dartmouth College   Summer 2020
Instructor: Planned, organized, and conducted two week-long camps for high school students on elementary number theory and coding, and graph theory

Biographies of Contemporary Women in Math, Dartmouth College   Winters 2019
Essay contest selection committee member   & 2020

Sonia Kovalevsky Day, Dartmouth College   Spring 2019
Day-of logistics coordinator for outreach day of math mini-lessons and games for middle school girls in NH and VT

WIMIN Conference, Smith College   Sept. 2018
Panelist, Applying to Graduate School panel

PROFESSIONAL DEVELOPMENT

Certificate in Mathematical Pedagogy, Dartmouth College   Nov. 2022

CIMER Mentoring Series for Grad Students and Postdocs, Dartmouth College   Spring 2022
Workshop on becoming an effective mentor to undergraduates

Anti-Racist Pedagogy Reading Group, Dartmouth College   Summer 2021

Software Carpentry - Python workshop, Dartmouth College   Summer 2021

Mathematics Department Teaching Seminar, Dartmouth College   Spring 2020

GRANTS

NSF-funded teaching and research assistant,   2017-18
Smith College Post-Baccalaureate Program for Women in Mathematics

The Shubert Foundation $50,000 arts grant   2016
obtained for Perseverance Theatre, Juneau, AK

Levitt Center $4,000 sociology and theater research grant, Hamilton College   2013

SELECTED THEATRE

Actor – *SIKOS (Smith Improv Komedy Org. of Smith)*, Smith College   2018-2019

Assistant Director – *In the Next Room, or the vibrator play* by Sarah Ruhl   Spring 2016
Director: Carolyn Howarth, Perseverance Theatre, Juneau, AK

Co-director – *A Pain in the Crevasse: Short Plays on Climate Change*   Dec. 2015
Mendenhall Glacier, Juneau, AK
Perseverance Theatre's contribution to 2015 Climate Change Theatre Action, worldwide series of readings and performances of short climate change plays presented biennially to coincide with the United Nations COP meetings

Director – *Disgrace* by John O'Keefe, Hamilton College   Spring 2015

Training – LDA (London Dramatic Academy)   Spring 2014
London, UK. Advanced training in acting, movement, voice, theatre history, theatre criticism