Academic Positions

**Assistant Professor**, *Dartmouth College*, Hanover, NH 2016–present

**Term Lecturer**, *Barnard College*, *Columbia University*, New York, NY 2015–2016

**G.C. Evans Instructor**, *Rice University*, Houston, TX 2012–2015

**Program Associate**, *Mathematical Sciences Research Institute* Berkeley, CA Spring 2010

Education

**Ph.D., Mathematics**, *Columbia University*, New York, NY 2006–2012
Advisor: Peter Ozsváth
Thesis: *Bordered Heegaard Floer homology, Satellites, and Decategorification*

**B.A., Mathematics and Computer Science**, *Amherst College*, Amherst, MA 2002–2006
Advisor: Ruth Haas, Smith College
Thesis: *Nonisomorphic Graph Colorings*

**Semester Abroad**, *Budapest Semesters in Mathematics*, Budapest, Hungary Fall 2004

Research Interests

Knot theory and low-dimensional topology, Heegaard Floer homology.

Long-Term Visits

**Visitor**, *CIRGET, UQAM* Montreal, Canada Summer 2019

**Invited Participant**: program on “Quantum Knot Invariants and Supersymmetric Gauge Theories” *Kavli Institute for Theoretical Physics* Santa Barbara, CA Fall 2018

**Program Associate**, *Mathematical Sciences Research Institute* Berkeley, CA Spring 2010

Publications and Preprints

**Twisted Mazur pattern satellite knots and bordered Floer theory**, *with B. Wong*
arXiv version: arXiv:2005.12795.

**Khovanov homology and causality in spacetimes**, *with V. Chernov and G. Martin*
Journal of Mathematical Physics, Vol.61, no.2. arXiv version: arXiv:2001.07274.

**Skein relations in tangle Floer homology**, *with M. Wong*
Quantum Topology, Vol.11, no.1, 119–225, 2020. arXiv version: arXiv:1611.04065.

**Quantum $gl(1|1)$ and tangle Floer homology**, *with A. Ellis and V. Vértesi*
Advances in Mathematics, Vol. 350, 130–189, 2019. arXiv version: arXiv:1510.03483.
The decategorification of bordered Heegaard Floer homology. Journal of Symplectic Geometry, Vol. 16, no.1, 227–277, 2018. arXiv version: arXiv:1212.4529.

An introduction to combinatorial tangle Floer homology, with V. Vértesi
Proceedings of the Gökova Geometry-Topology Conference 2015, 168–186, Gökova Geometry/Topology Conference (GGT), 2016. arXiv version: arXiv:1604.08430.

A self-pairing theorem for tangle Floer homology, with V. Vértesi
Algebraic & Geometric Topology, Vol.16, no.4, 2127–2141, 2016. arXiv version: arXiv:1503.06374.

Combinatorial tangle Floer homology, with V. Vértesi
Geometry & Topology, Vol.20, no.6, 3219–3332, 2016. arXiv version: arXiv:1410.2161.

An absolute $\mathbb{Z}/2$ grading on bordered Heegaard Floer homology.
arXiv version: arXiv:1401.2670. 24 pages.

Cables of thin knots and bordered Heegaard Floer homology.
Quantum Topology, Vol.4, no.4, 377–409, 2013. arXiv version: arXiv:0911.2679.

Grants and Awards

**NSF Grant DMS-1711100**, Extensions of Heegaard Floer Homology and Applications to Topology 2017–2020

**Simons Collaboration Grant** (declined) 2017

**Burke Research Initiation Award** 2016–2022

**AMS Simons Travel Grant** 2014–2016

**John Woodruff Simpson Fellowship** 2010–2011

**John Woodruff Simpson Fellowship** 2008–2009

**John Woodruff Simpson Fellowship** 2007–2008

**Robert H. Breusch Prize for Outstanding Senior Thesis**, Amherst College 2005–2006

**Amherst College Walker Prize** 2003–2004

**Amherst College Walker Prize** 2002–2003

Invited Colloquia and Conference Talks

**CMS Winter Meeting**, SS on Topology, Toronto, ON, Canada December 2019

**AMS Sectional Meeting**, SS on Invariants of Knots, Links, and Low-dimensional Manifolds October 2019

**Perspectives on bordered Heegaard Floer theory**, CIRGET, Montreal, Canada May 2018

**TQFT and Categorification**, IESC, France April 2018

**Women In Mathematics In New England**, Smith College September 2017

**Hamilton Geometry and Topology Workshop**, Trinity College Dublin August 2016

**Graduate Student Topology and Geometry Conference** April 2016

**AMS Sectional Meeting**, SS on Low-dimensional Topology and Geometry March 2016

**Gökova Geometry/Topology Conference** May 2015

**AMS Joint Mathematics Meetings**, SS on Knot Theory January 2015

**AMS Sectional Meeting**, SS on Interactions between Knots and Manifolds October 2014
Workshop on “Combinatorial Link Homology Theories, Braids, and Contact Geometry”, ICERM, Providence, RI
Medgar Evers College (CUNY) Math Club/Colloquium
TCU Math Colloquium
SHSU Math Colloquium
Workshop on “Interactions of gauge theory with contact and symplectic topology in dimensions 3 and 4”, BIRS, Canada
AMS Sectional Meeting, SS on Algebraic and Combinatorial Structures in Knot Theory
AMS Sectional Meeting, SS on Low Dimensional Topology and Contact and Symplectic Geometry
AMS Joint Mathematics Meetings, SS on Knot Theory
MSRI Connections for Women Workshop
Knots in Washington XXIX, George Washington University

Seminar Talks

MIT Geometry and Topology Seminar
Duke Geometry/Topology Seminar
Dartmouth Topology Seminar
Dartmouth Topology Seminar
Geometry and Topology Seminar, UMass Amherst
Wesleyan Topology Seminar
UQAM-CIRGET Geometry and Topology Seminar
LSU Topology Seminar
Topology Seminar, Dartmouth College
University of Miami Geometry and Physics Seminar
Columbia Symplectic Geometry, Gauge Theory, and Categorification Seminar
Dartmouth Geometry and Topology Seminar (3 lectures)
Brandeis Geometry and Topology Seminar
MIT Geometry and Topology Seminar
CUNY Representation Theory Seminar
Boston College Geometry/Topology Seminar
UQAM - CIRGET Geometry and Topology Seminar
Rice University Topology Seminar
Rice University VIGRE Topology Seminar
University of Virginia Geometry Seminar
Georgia Tech Geometry and Topology Seminar
Joint Los Angeles Topology Seminar
Princeton Topology Seminar
Rice University VIGRE Topology Seminar
Rice University VIGRE Topology Seminar
LSU Topology Seminar
LSU Topology Working Seminar
Rice University VIGRE Topology Seminar
Rice University Topology Seminar

August 2014
March 2014
November 2013
October 2013
March 2013
March 2012
March 2011
January 2011
January 2010
December 2009
March 2020
November 2018
November 2018
April 2018
March 2018
March 2018
March 2018
September 2017
April 2017
February 2017
October 2016
September 2016
April 2016
March 2016
October 2015
June 2015
February 2015
February 2015
January 2015
January 2015
November 2014
September 2014
September 2014
April 2014
November 2013
November 2013
December 2012
November 2012
Columbia Geometric Topology Seminar
Berkeley Topology Seminar
Brandeis Topology Seminar
UQAM - CIRGET Geometry and Topology Seminar
Smith College Undergraduate Seminar
Amherst College Math Seminar
Columbia Undergraduate Math Seminar
Columbia Graduate Student Topology Seminar
HCSSiM

Teaching Experience

Dartmouth College, Hanover, NH (Instructor)
Current problems in Topology (Contact Topology) Fall 2019
Algebra Fall 2019
Current problems in Topology (Heegaard Floer Homology) Winter 2019
Linear Algebra Winter 2019
Multivariable Calculus Fall 2018
Knot Theory Winter 2018
Calculus in One and Several Variables Fall 2017
Differential Equations Winter 2017
Multivariable Calculus Fall 2016

Columbia University, New York, NY (Instructor)
Calculus II Spring 2016
Calculus I Fall 2015

Rice University, Houston, TX (Instructor)
Advanced Topics in Topology Spring 2015
Geometry Spring 2014
Multivariable Calculus Spring 2014
Topics in Heegaard Floer Homology Fall 2013
Elements of Knot Theory Spring 2013
Single Variable Calculus II Fall 2012, 2014

Columbia University, New York, NY (Instructor)
Linear Algebra Summer 2010
Calculus II Spring 2009

Columbia University, New York, NY (Teaching Assistant)
Research Experience for Undergraduates (REU) Summer 2008, 2009, 2011
Differential Geometry Spring 2012
Undergraduate Topology Fall 2009, 2011
Knot Theory Fall 2008
Calculus III Summer 2008
Analysis and Optimization Summer 2008
Algebraic Topology I (graduate) Fall 2007, 2010
Algebraic Topology II (graduate) Spring 2008, 2011

**Science Honors Program**, Columbia University, New York, NY (Instructor)
Graph Theory (Authored course material) Fall 2007, Spring 2008

**Hampshire College Summer Studies in Mathematics**, Amherst, MA (Junior Staff)
Workshop in Number Theory, Graph Theory, Abstract Algebra, etc. Summer 2005
Topology Mini Course (Authored course material) Summer 2005

**Advising**

**PhD Thesis Advisor**
Douglas Knowles (current)
Samuel Tripp (current)
Zachary Winkeler (current)

**Postdoctoral mentor**
C.-M. Michael Wong, 2020–present
Samantha Allen, 2018–present
Nate Dowlin (NSF), 2018–2019

**Undergraduate Mentor**
Jacob Swenberg (current, research co-advised with S. Allen and V. Chernov)

**Service and Synergistic Activities**

**Referee**
*Advances in Mathematics* · *Geometry & Topology* · *Journal of Topology* · *Selecta Mathematica* · *Quantum Topology* · *Algebraic & Geometric Topology* · *Pacific Journal of Math*

**Seminars and Conferences**
ICERM Project Leader: Women in Symplectic and Contact July 2019
Geometry and Topology workshop
Organizer of Dartmouth Topology Seminar 2017–present
Co-organizer of Columbia University Symplectic Geometry, 2015–2016
Gauge Theory, and Categorification Seminar
Co-organizer of Rice University Putnam Seminar 2014–2015
Co-organizer of Rice University Topology Seminar 2014–2015
Co-organizer of Rice University Teaching Seminar 2013–2014
Co-organizer of Special session on Low-Dimensional Topology March 2013
AWM Research Symposium 2013, Santa Clara, CA
Colloquium Committee, Rice University Math Colloquium 2012–2013

**Undergraduate Outreach**
Speaker at the E.E. Just Science Forum, Dartmouth College, Hanover, NH 2018
Speaker at Undergraduate Math Seminar, Columbia University, New York, NY 2009, 2016
Perspectives in Mathematics co-organizer, Columbia University, New York, NY  
Fall 2015
Speaker at Medgar Evers College Math Club, New York, NY  
2014
Smith College Undergraduate Seminar (talk and discussion), Northampton, MA  
2010
Speaker at Amherst College Math Seminar (talk and discussion), Amherst, MA  
2009
REU Teaching Assistant, Columbia University, New York, NY  
2008–2011

**K-12 Outreach**

STEM Pathways speaker, Hanover High School, Hanover, NH  
2019
Plenary speaker, Sonia Kovalevsky Day, Dartmouth College  
2017
Math Circle talk: *Graph Theory*, Houston, TX  
2015
Women in Mathematics video: *The Pythagorean Theorem*, available at  
http://www.girlsangle.org/page/filmpages/Pythagorean_theorem.html  
2009
Interview for Girls’ Angle Bulletin, available at  
http://www.girlsangle.org/page/bulletin-archive/GABv03n01.pdf  
2009
Instructor for Science Honors Program, Columbia University, New York, NY  
2007–2008
HCSSiM talk: *Ina plays with matches*  
2005
Junior Staff at Hampshire College Summer Studies in Mathematics, Amherst, MA  
2005

**Service: Dartmouth College**

Open Education Initiative Committee  
2019–present
Judge for Association for Women in Mathematics (AWM)  
2018, 2020
Upper Valley Essay Contest
Dartmouth Association of Magicians Advisor  
2017–present
Departmental Committee Member
- TA training  
  Fall 2019
- Graduate Admissions  
  Fall 2018–Spring 2019
- Colloquium Director  
  Fall 2018, Spring 2019–present
- Teaching Evaluations Committee  
  Fall 2017–Spring 2018, Fall 2019, Winter 2020
- Prize Committee  
  Fall 2016–Spring 2018
- Undergraduate Program Committee UPC  
  Fall 2016–Spring 2017

**Other**

Speaker at Amherst College Graduate School Event  
(*discussion with undergraduates about grad school in mathematics*)  
April 2017
Tribeca Film Festival Panelist for *The Man Who Knew Infinity*  
April 2016
Served on NSF Review Panel (x2)
Reviewer for Simons Collaboration Grants