

POSITIONS

2022 - 2026 National Science Foundation Mathematical Sciences Postdoctoral Research Fellow

University of California, Los Angeles, 06/2021 - present.
Hedrick Assistant Adjunct Professor, mentor Mike Hill.

Research interests: vector bundles, chromatic homotopy theory, motivic homotopy theory, algebraic geometry, abstract homotopy theory, K-theory.

EDUCATION

Harvard University, 09/2015 - 05/2021.

Ph.D. in Mathematics. Supervised by Michael Hopkins.

“Complex rank 3 bundles on complex projective 5-space”.

University of Cambridge, 10/2014 - 06/2015.

M.A.St., Part III of the Mathematical Tripos, Pure Mathematics.

University of Massachusetts Amherst, 09/2011 - 05/2014.

B.S. in Mathematics. Honors thesis supervised by Jenia Tevelev.

“Extremal divisors on moduli spaces of rational curves with marked points”.

Cape Cod Community College, 06/2009 - 05/2011.

A.A. in Mathematics, Science and Pre-Engineering.

RESEARCH &
PUBLICATIONS

“Detection of unstable rank 2 topological bundles via iterated Thomification.”
In preparation.

“Applications of higher real K -theory to enumeration of stably trivial vector bundles”. In preparation.

“Rank-preserving additions for topological vector bundles, after a construction of Horrocks”. arXiv:2302.06963. Submitted.

“A classification of complex rank 3 bundles on complex projective 5-space”. arXiv:2301.04313. Submitted.

“Cofibration category of digraphs for path homology”, with D. Carranza, B. Doherty, C. Kapulkin, M. Sarazola, and L. Z. Wong. arXiv:2212.12568. To appear in Algebraic Combinatorics.

“Compactly supported \mathbb{A}^1 -Euler characteristic and the Hochschild complex,” with N. Arcila-Maya, C. Bethea, K. Wickelgren and I. Zakharevich. arXiv:2003.09347. Topology and its Applications, Vol 316 (2022).

“The trace of the \mathbb{A}^1 -local degree,” with T. Brazelton, R. Burklund, S. McKean, and M. Motoro. arXiv:1912.04788. Homology, Homotopy, and Applications, Vol. 23, No. 1 (2021), 401-413.

“Localization in homotopy type theory,” with J.D. Christensen, E. Rijke, and L. Scoccola. arXiv:1807.04155. Higher Structures, Vol. 4 No. 1 (2020), 1-32.

“Extremal divisors on moduli spaces of rational curves with marked points.” arXiv:1309.7229. Michigan Math. J. Vol. 65 (2016), 251-285.

SELECTED HONORS

2021 - 2022 Liggett Instructor Award for teaching, UCLA.

2021 - 2023 AMS–Simons Travel Grant recipient.

2014 - 2019 National Science Foundation Graduate Research Fellow.

2014 - 2015 Churchill Scholar.

2014 Association for Women in Mathematics Alice T. Schafer Prize, runner-up.

2013 University of Massachusetts Rising Researcher Award.

2013 Chang Transfer Award, UMass Amherst Dept. of Physics.

2012 Hasbrouck Award, UMass Amherst Dept. of Physics.

2011 “29 Who Shine” award, MA Dept. of Higher Ed.

OUTREACH & SERVICE

Fall 2023: scientific co-organizer fo eCHT seminar on algebraic vector bundles (with Thomas Brazelton).

Spring 2022 - present: UCLA Algebraic Topology research seminar organizer.

2022 & 2023 UCLA Summer Bridge program: mini-course leader and mentor for Master students from Cal State University campuses with research potential.

2020 - 2021: Harvard University Derek Bok Center Pedagogy Fellow in Mathematics. Mentored first-year PhD students in preparation for teaching.

September 2017 - January 2022: MIT Talbot Workshop organizer.

Spring 2020, spring 2021: Directed Reading Program mentor.

Fall 2015 - spring 2019: Harvard Womxn in Math Lunch organizer.

TEACHING

Summer 2023: designed and taught a one-week interactive mini course on category theory.

Summer 2022: designed and taught a one-week interactive mini course on Riemann surfaces and basic algebraic geometry.

Fall 2021, Winter 2022, Fall 2023: Instructor at UCLA, teaching proof-based linear algebra (Math 115A).

2018 - 2019: Teaching Fellow, Harvard University.

- Tutorial on categorical knot theory (summer 2019).
- Tutorial on category theory (summer 2018).
- Linear algebra (spring 2018).
- Course assistant, calculus and linear algebra (fall 2018).

Fall 2012 - spring 2014: Teaching Assistant, UMass Amherst Mathematics Department.

Fall 2009 - spring 2011: Peer Tutor, Cape Cod Community College Math Learning Center.

SELECTED TALKS

October 2023 South Central Topology Conference. “Applications of higher real K -theory to enumeration of stably trivial vector bundles”.

August 2023 conference on K -theory, Algebraic cycles, and Mathematical Physics at OSU. “Topological vector bundles on complex projective spaces.”

February 2023 University of Toronto Geometry and Topology seminar. “Topological vector bundles on complex projective spaces.”

June 2022 ALPE Seminar, Toulouse. “Rank 3 vector bundles on complex projective 5-space.”

June 2022 Chromatic Homotopy and Friends conference, Mittag-Leffler Institute, Stockholm. “Chromatic invariants of vector bundles.”

November 2021 CalTech Algebra and Geometry Seminar. “A compactly supported motivic Euler characteristic via the Hochschild complex”.

October 2021 USC Algebra Seminar. “Chromatic invariants of vector bundles on projective spaces”.

November 2020 - March 2021. “Vector bundles on projective spaces.” Talks based on thesis work, given during final year of PhD.

- Rutgers Algebra Seminar.
- University of Copenhagen Topology Seminar.
- University of California San Diego Topology Seminar.
- University of California Los Angeles Topology Seminar.
- University of Chicago/ Northwestern Topology Seminar.
- University of Illinois Urbana–Champaign Topology Seminar.
- University of Stockholm Topology Seminar.
- University of Colorado Boulder Topology Seminar.
- University of Virginia Topology Seminar.

May 2020 K-theory and Related Topics conference. “A compactly supported A^1 -Euler characteristic via the Hochschild complex”.

November 2019 Boston University Pick My Brain Seminar. “2-plane bundles on complex projective 3-space.” Expository.

July 2019 European Talbot Workshop on Algebraic K-theory. “Continuity for K-theory and TC”. Expository.

March 2019 Women in homotopy theory and algebraic geometry II, Freie University Bonn. “Localization in Homotopy Type Theory.”

Fall 2018 Johns Hopkins Topology Seminar. “Localization in Homotopy Type Theory.”

Fall 2017 Kan Seminar at MIT, supervised by Haynes Miller. Talks on Adams’ $J(X)$ IV and Quillen’s K -theory of finite fields. Expository.

Spring 2015 Warwick Algebraic Geometry Seminar. “Extremal Divisors on Moduli Spaces of Rational Curves with Marked Points.”

TECHNICAL SKILLS

Coq: formalized mathematical proofs within the HoTT library.

github: experience using version control for collaborative projects.

Macaulay2: wrote program to compute divisor classes during summer 2013 REU.