Cary L. Malkiewich

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Employment

Associate Professor, Binghamton University.	2024 – present
Assistant Professor, Binghamton University.	2017 – 2024
J. L. Doob Research Assistant Professor, UIUC.	2014 – 2017

Visiting Positions

Equivariant homotopy theory in context, Isaac Newton Institute, Cambridge, UK.	Jan 2025
Postdoctoral Fellow, Max Planck Institute for Mathematics, Bonn.	Jan 2018 – Dec 2018
Trimester Program *K-Theory and Related Fields*, Hausdorff Institute, Bonn.	Jul 2017
Junior Trimester Program *Topology*, Hausdorff Institute, Bonn.	Sept 2016
Visitor, University of Copenhagen.	Summer 2015

Education

Ph.D. in Mathematics, Stanford University. Advisor: Ralph L. Cohen.	2014
B.A. in Mathematics, Princeton University.	2009

Research Interests

Algebraic topology. Key words: homotopy theory, spectra, G-spectra, parametrized spectra, manifolds and cell complexes, differential topology, algebraic K-theory, topological Hochschild homology (THH), duality theory and traces, transfer maps, Nielsen fixed-point theory, scissors congruence.

Recent Awards and Grants

NSF Award (DMS - 2506430): Collaborative Research: K-theory, manifolds, and polyhedra	2025–2027
Simons Travel Support: Collaborations in K-theory, scissors congruence, and geometry	2025–2030
Simons Fellowship: Stable homotopy, equivariant topology, and higher scissors congruence	2025
NSF Award (DMS - 2453881): Conference: 4th Upstate New York Topology Seminar	2025–2026
NSF Award (DMS - 2052923): FRG: Collaborative Research: Trace Methods and Applications for Cut-and-Paste *K*-Theory	2021–2025
NSF Award (DMS - 2005524): Algebraic *K*-Theory in Fixed-Point Theory and Smooth Manifolds	2020–2024
Harpur College Teaching Award Honorable Mention (3)	2020, 2023, 2024

Papers and Preprints

Higher Spherical Scissors Congruence I: Hopf Algebra.
(with Inbar Klang, Josefien Kuijper, David Mehrle, and Thor Wittich) arxiv.org:2509.18009.

submitted.

From Hopf Algebras in Model Categories to Hopf Algebras in ∞-categories.
(with Inbar Klang, Josefien Kuijper, David Mehrle, and Thor Wittich) arxiv.org:2509.13602.
    submitted.

Scissors automorphism groups and their homology.
(with Alexander Kupers, Ezekiel Lemann, Jeremy Miller, and Robin J. Sroka) arxiv.org:2408.08081.
    submitted.

Periodic-point structures on parametrized spectra: An application of rigidity.
(with Kate Ponto.) arxiv.org:2306.03817.
    submitted.

A convenient category of parametrized spectra. arxiv.org:2305.15327
    submitted.

On the functoriality of the space of equivariant smooth h-cobordisms.
(with Thomas Goodwillie, Kiyoshi Igusa, and Mona Merling.) arxiv.org:2303.14892.
    submitted.

A Trace Map on Higher Scissors Congruence Groups.
(with Anna Marie Bohmann, Teena Gerhardt, Mona Merling, and Inna Zakharevich.) arxiv.org:2303.08172.
    International Mathematics Research Notices 2024.18 (2024): 12683-12710.

On the multiplicativity of the Euler characteristic.
(with John Klein and Maxime Ramzi.) arxiv.org:2211.04992.
    Proceedings of the American Mathematical Society 151.11 (2023): 4997-5006.

On higher scissors congruence. arxiv.org:2210.08082.
    submitted.

Coherence for bicategories, lax functors, and shadows. (with Kate Ponto.) arxiv.org:2109.01249.
    Theory and Applications of Categories 38 (2022), Paper No. 12, 328–373.

K-theoretic torsion and the zeta function. (with John Klein.) arxiv.org:2009.10120.
    Annals of K-Theory 7 (2022), no. 1, 77–118.

K-theory of endomorphisms, the TR-trace, and zeta functions.
(with Jonathan Campbell, John Lind, Kate Ponto, and Inna Zakharevich.) arxiv.org:2005.04334.
    La Matematica (2025): 1-79.

The equivariant parametrized h-cobordism theorem, the non-manifold part.
(with Mona Merling.) arxiv.org:2001.05563.
    Advances in Mathematics 399 (2022): 108242.

Coassembly is a homotopy limit map. (with Mona Merling.) arxiv.org:1904.05858.
    Annals of K-Theory 5.3 (2020): 373-394.

Periodic points and topological restriction homology. (with Kate Ponto.) arxiv.org:1811.12871.
    International Mathematics Research Notices 2022.4 (2022): 2401-2459.

Comparing cyclotomic structures on different models for topological Hochschild homology.
(with Emanuele Dotto, Irakli Patchkoria, Steffen Sagave, and Calvin Woo.) arxiv.org:1707.07862.
    Journal of Topology 12.4 (2019): 1146–1173.

The Morita equivalence between parametrized spectra and module spectra. (with John Lind.) arxiv.org:1702.07794.
    Contemporary Mathematics 707, New Directions in Homotopy Theory (2018): 45–66.

Equivariant A-theory. (with Mona Merling.) arxiv.org:1609.03429.
> Documenta Mathematica 24 (2019): 815–855.

The transfer map of free loop spaces. (with John Lind.) arxiv.org:1604.03067.
> Transactions of the American Mathematical Society 371 (2019): 2503–2552.

Cyclotomic structure in the topological Hochschild homology of DX. arxiv.org:1505.06778.
> Algebraic & Geometric Topology 17.4 (2017): 2307–2356.

The topological cyclic homology of the dual circle. arxiv.org:1610.06898.
> Journal of Pure and Applied Algebra 221.6 (2017): 1407–1422.

Coassembly and the K-theory of finite groups. arxiv.org:1503.06504.
> Advances in Mathematics 307C (2017): 100–146.

A tower connecting gauge groups to string topology. arxiv.org:1209.1778.
> Journal of Topology 8.2 (2015): 529–570.

Other Publications and Preprints

Spectra and stable homotopy theory.
> An illustrated graduate textbook-in-progress. The current draft has 10 chapters and 878 pages.
> Available on the author's homepage: https://people.math.binghamton.edu/malkiewich/

Parametrized spectra, a low-tech approach. arxiv.org:1906.04773.
> This is a longer, more expository version of "A convenient category of parametrized spectra."

Spectral Waldhausen categories, the $S_\bullet$-construction, and the Dennis trace. (with Jonathan Campbell, John Lind, Kate Ponto, and Inna Zakharevich.) arxiv.org:2006.04006.
> Graduate Journal of Mathematics, Volume 9, Issue 2 (2024), 27-60.

The user's guide project: giving experiential context to research papers. (with Mona Merling, David White, Luke Wolcott, and Carolyn Yarnall.)
> Journal of Humanistic Mathematics (2015) 5 (2): 186-188.

The stable homotopy category.
Homotopy colimits via the bar construction.
> Expository notes on homotopy theory that are occasionally cited in published works.

Duality and linear approximations in Hochschild homology, K-theory, and string topology.
> Ph.D. thesis.

Selected recent and upcoming talks

Graduate Student Conference in Algebra, Geometry, and Topology, Temple University. Plenary address.	May 2026
Algebraic Topology Seminar, University of Columbia.	Nov 2025
Geometry-Topology RTG Seminar, University of Michigan.	Oct 2025
Young Mathematicians Conference, The Ohio State University. Plenary address.	Aug 2025
Conference *Scissors congruence and K-theory*, University of Pennsylvania.	Jul 2025
Conference *Polylogarithms, homology of linear groups, and Steinberg modules*, SwissMAP Research Station, Switzerland.	Jun 2025
Topology Seminar, Massachusetts Institute of Technology.	Mar 2025
Algebraic Topology Seminar (online), Princeton University.	Mar 2025
AMS Spring Central Sectional, University of Kansas, Plenary address.	Mar 2025

Colloquium, Vrije Universiteit Amsterdam.	Feb 2025
Geometry/Topology Seminar, Brown University.	Oct 2024
Winter Midwest Topology Seminar, Loyola University Chicago.	Mar 2024
Geometry/Topology Seminar, University of Pennsylvania.	Dec 2023
Workshop *Spaces of manifolds*, Banff International Research Station, Banff, Canada.	Nov 2023
Mid-Atlantic Topology Seminar, University of Pennsylvania.	April 2023
Topology and Geometric Group Theory Seminar, Cornell University.	Oct 2022
Follow-up Workshop to JTP *Topology*, Hausdorff Institute, Bonn, Germany.	Sep 2022

Mini-course: Equivariant A-theory and equivariant h-cobordisms, with Mona Merling, Universität Regensburg, Germany.	Jul 2023
Mini-course: Trace methods, with Teena Gerhardt, Indiana University Bloomington.	Jun 2023
Mini-course: Spectra and smash products, PIMS, University of British Columbia, Canada.	Jul 2022

Conferences and Workshops Organized

Workshop: Scissors congruence K-theory and manifolds, Banff International Research Station (BIRS).	Jun 2027
AMS Sectional (special session co-organizer), University of Kansas.	Mar 2025
Upstate New York Topology Seminar (UNYTS), Binghamton University.	Mar 2025
Collaborative workshop in K-theory and Scissors Congruence, Vanderbilt University.	Jul 2024
AIM Workshop: Scissors congruences, algebraic K-theory and Steinberg modules, American Institute of Mathematics.	Jul 2024
Summer school on Scissors Congruence, Algebraic K-Theory, and Trace Methods, IU Bloomington.	Jun 2023
Summer school on Homotopical Methods in Fixed Point Theory, UC Boulder.	Jul 2022
AMS Sectional (special session co-organizer), Binghamton University.	Oct 2019