Dylan Wilson

CONTACT INFORMATION

Department of Mathematics
Harvard University
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RESEARCH INTERESTS

Algebraic K-theory, topological Hochschild homology, higher algebra, and various incarnations of homotopy theory: chromatic, equivariant, and motivic, and their intersections.

EDUCATION

Northwestern University

Ph.D. Mathematics, June 2017

Advisor: Paul Goerss

University of Washington

B.S. in Mathematics, June 2012

Advisor: Julia Pevtsova

EMPLOYMENT

Harvard University
Lecturer and NSF Postdoctoral Fellow, July 2019-present

University of Chicago
Dickson RTG Instructor, September 2017-June 2019

PUBLICATIONS

On the C_p-equivariant dual Steenrod algebra. With Krishanu Sankar. To appear in **Proceedings of the American Mathematical Society**.

Odd primary analogs of Real orientations. With Jeremy Hahn and Andrew Senger. To appear in **Geometry and Topology**.

Real topological Hochschild homology and the Segal conjecture. With Jeremy Hahn. **Advances in Mathematics 387** (2021).

Eilenberg-MacLane spectra as equivariant Thom spectra. With Jeremy Hahn. **Geometry and Topology 24** (2020).

A C_2-equivariant analog of Mahowald's Thom spectrum theorem. With Mark Behrens. **Proceedings of the American Mathematical Society 146** (2018).

PREPRINTS

A variant of the Segal conjecture in Hochschild homology. In preparation.

Redshift and multiplication for truncated Brown-Peterson spectra. (2020). With Jeremy Hahn. Submitted. `arXiv:2012.00864`.

C_2-equivariant Homology Operations: Results and Formulas. (2019). Submitted. `arXiv:1905.00058`.

Mod 2 power operations revisited. (2019). Submitted. `arXiv:1905.00054`.

Quotients of even rings. (2018). With Jeremy Hahn. Preprint. `arXiv:1809.04723`.

On categories of slices. (2017). Preprint. `arXiv:1711.03472`.

Orientations and topological modular forms with level structure. (2015). Preprint. `arXiv:1507.05116`.

Appendix to *Equivariant nonabelian Poincaré duality and equivariant factorization homology of Thom spectra.* (2020). With Jeremy Hahn. Preprint. `arXiv:2006.13348`.

Funding

National Science Foundation Mathematical Sciences Postdoctoral Fellowship
2019-2022

National Science Foundation Graduate Research Fellowship
2012-2017

Invited Talks

TBD. Massachusetts Institute of Technology. (December 2021).

Variations on the theme of Lichtenbaum-Quillen. Massachusetts Institute of Technology. (March 2021).

Redshift, Lichtenbaum-Quillen, and multiplication on $\mathrm{BP}\langle n\rangle$. Electronic Computational Homotopy Theory. (January 2021).

The multiplication on truncated Brown-Peterson spectra. Warwick Mathematics Institute. (October 2020).

Norms. Massachusetts Institute of Technology. (December 2019).

Real Hochschild homology and the norm of $\mathbb{F}_2$. Mid-Atlantic Topology Seminar. (October 2019).

Spoke Algebras. University of British-Columbia. (February 2019)

Complex conjugation at odd primes. Massachusetts Institute of Technology. (October 2018)

Eilenberg-MacLane spectra as equivariant Thom spectra. Notre Dame. (May 2018)

Eilenberg-MacLane spectra as equivariant Thom spectra. University of Rochester. (April 2018)

Eilenberg-MacLane spectra as equivariant Thom spectra. University of Minnesota. (April 2018)

Slice spheres in equivariant and chromatic homotopy theory. Massachusetts Institute of Technology. (October 2017)

Kervaire invariants, even spaces, and equivariant power operations. University of California, Los Angeles. (January 2017)

Equivariant power operations and analogs of BP. University of Chicago. (November 2016)

Kervaire invariants, even spaces, and equivariant power operations. Purdue University. (October 2016)

Orienting tmf with level structure. University of Illinois Urbana-Champaign. (March 2016)

Orienting tmf with level structure. Notre Dame. (December 2015)

Orienting tmf with level structure. University of Virginia. (October 2015)

Orienting tmf with level structure. University of Minnesota. (April 2015)

Cobordism, vector bundles, and group laws, Young Topologists Meeting, Center for Symmetry and Deformation, Copenhagen. (July 2014)

Contributed Talks

Equivariant K-theory. Chicago Summer School in Geometry and Topology. (Summer 2016)

From cobordism to K-theory. Chicago Summer School in Geometry and Topology. (Summer 2016)

Browder's work on the Kervaire invariant. Pre-Talbot Seminar. (Spring 2016)

Homotopy colimits and universal constructions. Pre-Talbot Seminar. (Spring 2016)

An overview of abstract homotopy theory. Pre-Talbot Seminar. (Spring 2016)

Rational homotopy theory I. Pre-Talbot Seminar. (Spring 2015)

K3 Surfaces Seminar, Northwestern (Fall 2014)

Toric Varieties and Pick's Theorem, Graduate Student Seminar. (Spring 2014)

Proof of Hoyois-Hopkins-Morel Theorem, Talbot Workshop. (March 2014)

Algebraic Geometry Examples and Computations, Pre-Talbot Workshop. (February 2014)

Sheaves of Spectra and Lurie's Theorem, Seminar on Topological Automorphic Forms, Northwestern. (Winter 2013)

The Dwyer-Weiss-Williams Index Theorem, Kan seminar, Northwestern. (Fall 2013)

The Chromatic Spectral Sequence and the Adams-Novikov E_2-term, Pre-Talbot Seminar, Northwestern. (March 2013)

∞-categories: Tip of the iceberg, dip of the toe, Thom spectra seminar, Northwestern. (Spring 2013)

Thom spectra that are Eilenberg-Maclane spectra, Seminar on elliptic cohomology, Northwestern. (Winter 2012)

The action of the mapping class group on Teichmüller space, Seminar on Teichmüller Theory, Northwestern. (Fall 2012)

Teaching and Outreach

Sep-Dec	2021	Instructor, Sets, Groups, and Topology
Jan-May	2021	Instructor, Discrete Mathematics
Sep-Dec	2020	Instructor, Linear Algebra and Applications
Jan-Jun	2019	Instructor, Abstract Linear Algebra
Spring	2018	Instructor, Abstract Linear Algebra
Winter	2018	Instructor, Introduction to Proofs
Fall	2017	Instructor, Accelerated Analysis
Fall	2016	Instructor, Differential Calculus
Sept-June	2012-2017	Volunteer Mentor at Evanston Math Circle
Aug-Sep	2016	Lead TA, Bridge program
Fall	2015	Teaching Assistant, Honors Abstract Algebra
Aug-Sep	2015	Lead TA, Bridge program
Fall	2014	Teaching Assistant, Linear Algebra
Aug-Sep	2014	Teaching Assistant, Bridge Program
Fall	2013	Teaching Assistant, Differential Geometry
Aug-Sep	2013	Teaching Assistant, Bridge Program
Sept-June	2010-2012	Co-Coordinator University of Washington Math Circle
Summer	2011-2012	TA and Counselor Summer Institute for Mathematics at UW

Organization

2019-2021	Harvard Thursday Seminar Co-organizer
2017–2019	University of Chicago Algebraic Topology Seminar Co-organizer
2018	Chromatic Homotopy Theory: Journey to the Frontier Co-organizer
2015-2017	Northwestern topology seminar Co-organizer
2014- 2017	Talbot workshop Co-organizer
2016	Chicago Summer School in Geometry and Topology Co-organizer
2016	Winter Midwest Topology Seminar Co-organizer

Service

2021. Harvard Mathematics Intensive Advising Committee.

2020-2021. Harvard Mathematics Community Committee.

Referee and expert opinion for: *Transactions of the American Mathematical Society*, *Advances in Mathematics*, *Mathematische Zeitschrift*, *Journal of Topology*, *Algebraic & Geometric Topology*, *Journal of Homotopy and Related Structures*, *Mathematical Research Letters*, etc.

Honors and Awards

2016	Bridge Teaching Assistant Award
2015	Gelfand Award *For outstanding contribution to the department*
2015	Bridge Teaching Assistant Award *Northwestern University*
2011	Gullicksen Award in Mathematics *University of Washington*

References

Michael Hopkins, Harvard University, `mjh@math.harvard.edu`

Paul Goerss (advisor), Northwestern University, pgoerss@math.northwestern.edu

Lars Hesselholt, University of Copenhagen, larsh@math.nagoya-u.ac.jp

Mike Hill, University of California, Los Angeles, mikehill@math.ucla.edu

Mark Behrens, University of Notre Dame, mbehren1@nd.edu

Brendan Kelly (teaching), Harvard University, kelly@math.harvard.edu

Eric Zaslow (teaching), Northwestern University, zaslow@math.northwestern.edu