Yifei Zhu

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Positions

Institute of Mathematics, Chinese Academy of Sciences, Beijing, China
Visiting scholar, October 2016 to present

Northwestern University, Evanston, Illinois
Visiting assistant professor (postdoctoral), September 2013 to August 2016
Mentor: Paul Goerss

Education

University of Minnesota, Twin Cities, Minnesota
Ph.D. in Mathematics, June 2013
Advisor: Tyler Lawson

Peking University, Beijing, China
B.S. in Mathematics, July 2007

Research Interests

Algebraic topology and related fields, particularly algebraic geometry and number theory.

Publications and Preprints

Deformation structures and norm coherence
In preparation.

Morava E-homology of Bousfield-Kuhn functors on odd-dimensional spheres
Preprint. Available at https://yifeizhu.github.io/bkos.pdf.

Modular equations for Lubin-Tate formal groups at chromatic level 2
Submitted for publication. Available at arXiv:1508.03358.

The Hecke algebra action on Morava E-theory of height 2
Submitted for publication. Available at arXiv:1505.06377.

The power operation structure on Morava E-theory of height 2 at the prime 3
Algebraic and Geometric Topology **14** (2014), no. 2, 953–977. DOI: 10.2140/agt.2014.14.953

PRESENTATIONS

Invited
AMS Special Session on Homotopy Theory, Sectional Meeting, Bloomington, April 2017.

Power operations in elliptic cohomology and moduli of elliptic curves
Nankai University, November 2016.

Toward calculating unstable higher-periodic homotopy types
Chinese Academy of Sciences Topology Seminar, November 2016.

Power operation calculations in elliptic cohomology
Southern University of Science and Technology, October 2016.

Modular equations and Hecke operators for local elliptic spectra
University of Chicago Topology Seminar, January 2016.

Local moduli for elliptic spectra
University of Notre Dame Topology Seminar, January 2016.

Modular equations for Lubin-Tate formal groups at chromatic level 2
AMS Session on Algebraic Geometry, Joint Meetings, Seattle, January 2016.

Computing power operations for Morava E-theory of height 2 at a prime
University of Rochester Topology Seminar, October 2015.

The Hecke algebra action on Morava E-theory of height 2

University of Illinois at Urbana-Champaign Topology Seminar, October 2014.

Finite subgroups of a formal group of height 2 over $\mathbb{F}_9$

University of Louisiana at Lafayette Topology Seminar, March 2014.

Power operation calculations in elliptic cohomology

AMS Special Session on Homotopy Theory, Joint Meetings, Baltimore, January 2014.

A formal group of height 2 over $\mathbb{F}_9$

Northwestern University Topology Seminar, October 2013.

Power operations in height-2 Morava E*-theory and its* $K(1)$*-localization*

University of Illinois at Urbana-Champaign Topology Seminar, September 2013.

Power operations in an elliptic cohomology theory

University of Minnesota Topology Seminar, April 2013.

Computing power operations in Morava E*-theory at height 2 for the prime 3*

Wayne State University Topology Seminar, March 2013.

The structure of power operations in Morava E*-theory at height 2 for the prime 3*

University of Chicago Algebraic Topology Seminar, March 2013.

Computing power operations for Morava E*-theory of height 2 at the prime 3*

University of Virginia Topology Seminar, February 2013.

Conferences and Workshops

West Coast Algebraic Topology Summer School

On connections between algebraic topology and number theory.

University of Oregon, Eugene, August 8–12, 2016.

Operations in Highly Structured Homology Theories

International conference, 5 days, 40 participants.

Organizer and speaker, Session on chromatic power operations.

Banff International Research Station, May 22–27, 2016.

Mid-Atlantic Topology Conference—in honor of Nick Kuhn
University of Virginia, Charlottesville, April 25–26, 2015.

West Coast Algebraic Topology Summer School
University of Washington, Seattle, August 26–28, 2011.

New Contexts in Homotopy Theory—in honor of Peter May
University of Chicago, Chicago, October 16–18, 2009.

Midwest Topology Seminar
Regularly attended since May, 2009.

Academic Honors

2005–2006 Outstanding Student Award
School of Mathematical Sciences, Peking University.
Nominated and chosen by faculty and students.
Awarded to 14 out of 213 junior students.

Seminar Organizing

2011–2012 University of Minnesota Student Topology Seminar
Joint organizer with D. Bashkirov, R. Hank, E. Manlove.
Collaboratively designed and created wiki pages for the seminar.

Teaching Experience

Northwestern University

- Courses taught:

  Math 230 Differential Calculus of Multivariable Functions
  Math 234 Multiple Integration and Vector Calculus
  Math 240 Linear Algebra
  Math 300 Foundations of Higher Mathematics
- Regularly served as course coordinator for Math 230—the most-enrolled calculus course with the largest instructor group.
- Served as faculty mentor for Math 230's *Gateway Science Workshop* program for two consecutive terms, with recognition from the Provost.

- Involved in *Math Review Study Tables*—drop-in question and answer / group study sessions run prior to calculus exams in residence halls, initiated and co-sponsored by the Office of Residential Academic Initiatives and the Department of Mathematics.
- Involved in piloting the use of *Crowdmark*—a collaborative online grading and analytics platform, with recognition from the Mathematics Department Chair. Experienced with technology and administrative matters.
- Involved in transitioning common calculus course websites from *Blackboard* to *Canvas*.

University of Minnesota

- Teaching assistant for courses:

  Math 1151 Precalculus II
  Math 1271 Calculus I
  Math 2263 Multivariable Calculus
  Math 8602 Real Analysis
- Teaching assistant training, 2007. One of two (among 15) international math graduate students who were exempted from language classes.