Qing Zhang
zhan4169@purdue.edu
150 N. University Street, West Lafayette, IN 47907

Employment

Purdue Universiy 2020 – Present
Golomb Visiting Assistant Professor of Mathematics

Education

Texas A&M University 2014 – 2019
Doctor of Philosophy in Mathematics
Advisor: Eric Rowell
Dissertation: Super-modular Categories

Beihang University 2011–2014
Master of Science in Mathematics

Hefei University 2007 – 2011
Bachelor of Science in Mathematics

Program Participation

MSRI Program on Quantum Symmetries Spring 2020
Postdoctoral Fellow

Research Interests

Category theory, representation theory, topological quantum computation, 3-manifold and
link invariants

Papers

- (with J. Plavnik, A. Schopieray and Z. Yu), Modular tensor categories, subcategories, and Galois orbits, arXiv:2111.05228, submitted.

- (with S.-H. Ng, E. Rowell and Y. Wang), Higher central charges and Witt groups, *Advances in Mathematics*, 2022, 404: 108388.

- (with S.-H. Ng and Y. Wang), Modular categories with transitive Galois actions, *Communications in Mathematical Physics* (2022): 1-40.

- (with C. Delaney, C. Galindo, J. Plavnik and E. Rowell), Braided zesting and its applications, *Communications in Mathematical Physics* (2021): 1-55.

- (with X. Cui, P. Gustafson and Q. Yang), From Torus Bundles to Particle-Hole Equivariantization, *Letters in Mathematical Physics* 112.1 (2022): 1-19.

- (with P. Bonderson, E. Rowell and Z. Wang), Congruence subgroups and super-modular categories, *Pacific Journal of Mathematics* 296, no. 2 (2018): 257-270.

- (with P. Bruillard, J. Plavnik and E. Rowell), On classification of super-modular categories of rank 8, *Journal of Algebra and Its Applications* 20, no. 01 (2021): 2140017.

- (with P. Gustafson, A. Kimball and E. Rowell), Braid group representations from twisted tensor products of group algebras, *Peking Mathematical Journal*, 3, 103-130.

- (with A. Deaton, P. Gustafson, L. Mavrakis, E. Rowell, S. Poltoratski, S. Timmerman, B. Warren), Integral Metaplectic Modular Categories, *Journal of Knot Theory and Its Ramifications 29*, no. 05 (2020): 2050032.

Teaching Experience

Purdue University, West Lafayette, IN

Instructor of Record

Linear Algebra (MA265)	Spring 2022
Ordinary Differential Equations (MA266)	Fall 2020, Spring 2021, Fall 2021

Texas A&M University, College Station, TX

Assistant REU Instructor

REU on Mathematics of Topological Quantum Computation	Summer 2018

Instructor of Record

Mathematical Concepts – Calculus (M131)	Spring 2018

Teaching Assistant

Topics in Topology and Geometry, Study Abroad, Beijing (M485)	Summer 2016
Engineering Mathematics II (M152)	Spring 2016
Engineering Mathematics I (M151)	Fall 2015, Fall 2016, Spring 2017

Grader

A Survey of Mathematical Problems I & II (M645 & M645)	Spring 2019, Fall 2017
Computational Linear Algebra (M660)	Fall 2019

Research School on Quantum Symmetries, Universidad de los Andes, Bogotá

Teaching Assistant

The Mathematics of Topological Quantum Computing	Summer 2019

Honors and Awards

Outstanding TA Award

Texas A&M University Department of Mathematics	Spring 2017

Lechner Graduate Grant

Texas A&M University Department of Mathematics	2014-2015

Second Prize Scholarship

Beihang University Department of Mathematics	2011-2012

National Scholarship

Hefei University Department of Mathematics	Fall 2009

Conference Talks

AWM Research Symposium Special Session: Homological Methods in Noncommutative Algebra and Representation Theory. Rice University, Houston. April 6-7, 2019.

AMS Special Session on Quantum Symmetries: Subfactors and Fusion Categories (a Mathematics Research Communities Special Session) at the 2019 Joint Mathematics Meetings in in Baltimore. January 16-19, 2019.

AMS Special Session on Tensor Categories and Diagrammatic Methods at the AMS Sectional Meeting in Nashville. April 14-15, 2018.

Special Session on Mathematics of Quantum Phases of Matter and Quantum Information at Math Congress of the Americas. Centre Mont-Royal and McGill University, Montreal, Canada. July 24-28, 2017.

AMS Special Session on Fusion Categories and Quantum Symmetries at the 2017 Joint Mathematics Meetings in Atlanta. January 04-07, 2017.

Seminar Talks

Algebraic Questions from Topological Quantum Computation, Quantum Algebra/Quantum Topology Seminar. Ohio State University. December, 2019

Algebraic Questions from Topological Quantum Computation, Algebra Seminar. Indiana University Bloomington. November, 2019

The Algebra of Topological Quantum Computing, Mathematical Physics Seminar. Purdue University. November, 2019

Topological Quantum Computing and Braid Group Representations, Graduate Student Seminar. Texas A&M University. March, 2019

Classification of Super-modular Categories, Algebra and Combinatorics Seminar. Texas A&M University. February, 2019.

Workshop Participation

SQuaRE Program, AIM (American Institute of Mathematics), Sept 30 - Oct 04, 2019.

In and around Topological Physics, Beijing International Center for Mathematical Research, Beijing, China, July 16-20, 2019

Research School on Quantum Symmetries, Universidad de los Andes, June 24 - July 5, 2019

Summer Research Program on Quantum Symmetries, OSU, June 3-14, 2019

2nd IAMCS Workshop on Quantum Computation, Texas A&M University, May 13-15, 2019

Workshop on Subfactors and Fusion categories at BIRS in Banff, Canada, October 14-19, 2018

1st IAMCS Workshop on Quantum Computation, Texas A&M University, September 20-22, 2018.

AMS Mathematical Research Community on Quantum Symmetries, Whispering Pines, RI, June 10-16, 2018.