

Qing Zhang

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POSITIONS	<i>Golomb Visiting Assistant Professor</i> <i>Purdue University</i> Mentor: Xingshan Cui	Aug. 2020 – now
	<i>Postdoctoral Fellow</i> <i>MSRI Program on Quantum Symmetries</i> Mentor: Richard Ng	Jan. 2020 – May. 2020
EDUCATION	<i>Ph.D. in Mathematics</i> <i>Texas A&M University</i> Advisor: Eric Rowell Thesis: Super-modular Categories	Aug. 2014 – Dec. 2019
	<i>M.Sc. in Mathematics</i> <i>Beihang University, China</i>	Sept. 2011 – Jan. 2014
	<i>B.Sc. in Mathematics</i> <i>Hefei University, China</i>	Sept. 2007 – Jul. 2011
RESEARCH INTERESTS	Tensor categories, topological quantum computation, braid group representation, low dimensional topology	
PUBLICATIONS AND PREPRINTS	<ol style="list-style-type: none">(with C. Delaney, C. Galindo, J. Plavnik and E. Rowell), <i>G</i>-crossed braided zesting, arXiv:2212.05336.(with J. Plavnik, A. Schopieray and Z. Yu), Modular tensor categories, subcategories, and Galois orbits, arXiv:2111.05228. To appear in Transformation Groups.(with S.-H. Ng, E. Rowell and Y. Wang), Higher central charges and Witt groups, <i>Advances in Mathematics</i> 404 (2022): 108388.(with S.-H. Ng and Y. Wang), Modular categories with transitive Galois actions, <i>Communications in Mathematical Physics</i> 390.3 (2022): 1271-1310.(with C. Delaney, C. Galindo, J. Plavnik and E. Rowell), Braided zesting and its applications, <i>Communications in Mathematical Physics</i> 386.1 (2021): 1-55.(with X. Cui, P. Gustafson and Y. Qiu), From torus bundles to particle-hole equivariantization, <i>Letters in Mathematical Physics</i> 112.1 (2022): 1-19.(with P. Bonderson, E. Rowell and Z. Wang), Congruence subgroups and super-modular categories, <i>Pacific Journal of Mathematics</i> 296, no. 2 (2018): 257-270.	

8. (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.
9. (with P. Gustafson, A. Kimball and E. Rowell), Braid group representations from twisted tensor products of group algebras, *Peking Mathematical Journal*, 3, 103-130.
10. (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

Ordinary Differential Equations	Jan. 2023 – now
Mathematics Department, Purdue University	
Ordinary and Partial Differential Equations	Aug. 2022 – Dec 2022
Mathematics Department, Purdue University	
Linear Algebra	Jan. 2022 – May 2022
Mathematics Department, Purdue University	
Ordinary Differential Equations	Aug. 2020 – Dec 2021
Mathematics Department, Purdue University	
Teaching Assistant	June 2019 – July 2019
The Mathematics of Topological Quantum Computing, Research School on Quantum Symmetries, Universidad de los Andes, Bogotá	
Teaching Assistant	June 2018 – July 2018
REU on Mathematics of Topological Quantum Computation	
Mathematics Department, Texas A&M University	
Mathematical Concepts – Calculus	Jan. 2018 – May 2018
Mathematics Department, Texas A&M University	
Teaching Assistant	Aug. 2014 – Dec. 2019
Mathematics Department, Texas A&M University	

AWARDS

Outstanding TA Award	Spring 2017
Mathematics Department, Texas A&M University	
Lechner Graduate Grant	2014-2015
Mathematics Department, Texas A&M University	
Second Prize Scholarship	2011-2012
Department of Mathematics, Beihang University	
National Scholarship	Fall 2009
Department of Mathematics, Hefei University	

CONFERENCE TALKS

Quantum Symmetries at the CRM, Université de Montréal.	Oct. 24 - 28, 2022
AMS Special Session on Quantum Algebra and Quantum Topology at the Spring Central Sectional Meeting.	Mar. 26 - 27, 2022
AMS Special Session on Fusion Categories and Their Applications in Physics at the 2022 Joint Mathematics Meetings.	April 6 - 9, 2022.
AMS Special Session on Tensor Categories and Applications at the Fall Western Sectional Meeting.	Oct. 23 - 24, 2021
SIAM Conference on Applied Algebraic Geometry.	Aug. 16 - 20, 2021.

AMS Special Session on Hopf Algebras, Tensor Categories, and Related Homological Methods at the Spring Eastern Sectional Meeting. Mar. 20 - 21, 2021.

AMS Special Session on Hopf Algebras and Tensor Categories at the 2021 Joint Mathematics Meetings. Jan. 6 - 9, 2022.

AWM Research Symposium Special Session on Homological Methods in Noncommutative Algebra and Representation Theory. 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 Baltimore. Jan. 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. Jan. 04 - 07, 2017.

SEMINAR TALKS

Quantum Topology Seminar. Indiana University Bloomington. Feb. 2023.

Braided Zesting and its applications, The TACO Seminar, Loyola University Chicago Nov., 2022.

Classification of Modular Categories by Galois Orbit Count, Algebra & Combinatorics Seminar, North Carolina State University Nov., 2022.

Classifying Modular Categories, Quantum Symmetry at the CRM, Montreal, Canada Oct., 2022.

From torus bundles to particle-hole equivariantization, Quantum Topology Seminar. Indiana University Bloomington. Dec. 2021.

Modular categories with transitive Galois actions, Quantum Symmetries Student Seminar. The Ohio State University. Aug. 2021.

Modular Categories with Transitive Galois Actions, Online Seminar. Mathematical Sciences Research Institute. May, 2020.

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

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

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

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

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

WORKSHOP Higher Categories and Topological Order, American Institute of Mathematics, Sep. 26 - 30, 2022
PARTICIPATION

Quantum Topology and Geometry, Institut Henri Poincaré, June 13 - 17, 2022.

Graduate Summer School: Mathematics of Topological Phases of Matter, IPAM, Aug. 29 - Sep. 3, 2021.

Fusion Categories and Tensor Networks, American Institute of Mathematics, Mar. 8 - 12, 2021.

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

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

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

Summer Research Program on Quantum Symmetries, The Ohio State University, 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, Oct. 14-19, 2018

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

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