

Sheng Tan

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EDUCATION	Purdue University, West Lafayette	Aug 2018 to May 2023
BACKGROUND	– Ph.D, advisor: Uli Walther	
	Capital Normal University, Beijing	Sep 2015 to June 2018
	– MS.	
	Central South University, Changsha	Sep 2011 to June 2015
	– BS.	
EMPLOYMENTS	October 2025 - present, Capital Normal University, Lecturer July 2023 - September 2025, BIMSA & YMSC, postdoc	
RESEARCH INTERESTS	Mathematical physics: TQFTs, quantum symmetries, lattice models Category theory: tensor categories, modular categories Algebraic geometry: D -modules, Higgs bundles and their applications in mathematical physics	
PUBLICATIONS AND PREPRINTS	7. S. Cao, Z. Jia* and S. Tan*. Topological quantum color code model on infinite lattice. <i>preprint</i>, arXiv:2601.12409. 6. Z. Jia* and S. Tan*. Weak Hopf tube algebra for domain walls between 2d gapped phases of Turaev-Viro TQFTs, <i>J. High Energy Phys.</i> 11 (2025) 018. 5. L. Wei, Z. Jia, D. Kaszlikowski and S. Tan. Antilinear superoperator, quantum geometric invariance, and antilinear symmetry for higher-dimensional quantum systems, <i>Quant. Inf. Proc.</i> 4. Z. Jia, S. Tan and D. Kaszlikowski. Weak Hopf symmetry and tube algebra of the generalized multifusion string-net model, <i>J. High Energy Phys.</i> 07 (2024) 207. 3. Z. Jia, D. Kaszlikowski and S. Tan*. Electric-magnetic duality and $\mathbb{Z}_2$ symmetry enriched Abelian lattice gauge theory, <i>J. Phys. A: Math. Theor.</i> 57 (2024), 255203. 2. Z. Jia, S. Tan*, D. Kaszlikowski and L. Chang. On weak Hopf symmetry and weak Hopf quantum double model, <i>Comm. Math. Phys.</i> 402 (2023), 3045–3107. 1. Z. Jia, D. Kaszlikowski and S. Tan*. Boundary and domain wall theories of 2d generalized quantum double model, <i>J. High Energy Phys.</i> 07 (2023) 160. * corresponding author	

GRANTS	2026.01 - 2027.12, Mathematical theory of tube algebras and its applications in topological orders, Young Scholar Project of BJNSF, No.1264052. 2025.11 - 2026.12, Tube algebra and its applications from the perspective of symmetry, Starting Fund from CNU, No.007-25534510002.
AWARDS AND HONORS	National Project for PhD from Abroad, China 2025 Research Assistant Fund, Purdue University Spring 2022 Summer Research Fund, Purdue University Summer 2021 First Prize Graduate Scholarship, Capital Normal University 2016-17
TEACHING EXPERIENCE	Purdue University Calculus 1, recitation instructor Spring 2021 Calculus 2, recitation instructor Spring 2020 Linear algebra, differential equations, differential geometry Grader Capital Normal University Mathematical Analysis, teaching assistant Fall 2017
TALKS	<i>Lattice models and weak Hopf quantum symmetry in topological phases.</i> Topology Seminar, BIMS, March 2026 <i>Weak Hopf symmetries behind 2d topological phases.</i> Postdoc Research Seminar, BIMS, March 2025 <i>Tube algebras behind 2d topological phases.</i> Postdoc Workshop, YMSC, Tsinghua University, September 2024 <i>Weak Hopf algebras and 2d topological phases.</i> Workshop on quantum information, Hebei Normal University, June 2024 <i>On quantum groupoids and their applications in quantum double models.</i> Advances in Quantum Algebras, BIMS, January 2024 <i>On weak Hopf symmetry and weak Hopf quantum double model.</i> BIMS-Tsinghua Quantum Symmetry Seminar, BIMS, December 2023 <i>Boundary theory of 2d Hopf quantum double models.</i> Postdoc Workshop, YMSC, Tsinghua University, October 2023 <i>Boundary theory for Kitaev's quantum double model.</i> Mathematics Graduate Research Day, Purdue University, November 2022 <i>Boundary theories of 2d generalized quantum double model.</i> Forum for Young Scholars in Statistics, Central South University, June 2022 (online)
LANGUAGE	Chinese (native speaker); English (proficient); French (can read math papers in French)

Last updated: April 7, 2026