

Sheng Tan

Beijing Institute of Mathematical Sciences and Applications (BIMSA)

Huairou, Beijing, 101408, China

Email: tan296@bimsa.cn

Homepage: <https://sites.google.com/view/tansheng/home>

EDUCATION **Purdue University, West Lafayette** Aug 2018 to May 2023
BACKGROUND – Ph.D in Mathematics

EMPLOYMENTS • July 2023 - present, BIMSA & YMSC, postdoc fellow.

RESEARCH INTERESTS • topological quantum field theories
• tensor categories, modular categories
• algebraic geometry

PUBLICATIONS AND PREPRINTS 5. Z. Jia, **S. Tan** and D. Kaszlikowski. Weak Hopf symmetry and tube algebra of the generalized multifusion string-net model, *preprint*, [arXiv:2403.04446](https://arxiv.org/abs/2403.04446).
4. Z. Jia, **S. Tan***, D. Kaszlikowski and L. Chang. On weak Hopf symmetry and weak Hopf quantum double model, *Comm. Math. Phys.* **402** (2023), 3045–3107, [arXiv:2302.08131](https://arxiv.org/abs/2302.08131).
3. Z. Jia, D. Kaszlikowski and **S. Tan***. Boundary and domain wall theories of 2d generalized quantum double model, *JHEP* **07** (2023) 160, [arXiv:2207.03970](https://arxiv.org/abs/2207.03970).
2. L. Wei, Z. Jia, D. Kaszlikowski and **S. Tan**. Antilinear superoperator, quantum geometric invariance, and antilinear symmetry for higher-dimensional quantum systems, *preprint*, [arXiv:2202.10989](https://arxiv.org/abs/2202.10989).
1. Z. Jia, D. Kaszlikowski and **S. Tan***. Electric-magnetic duality and \mathbb{Z}_2 symmetry enriched Abelian lattice gauge theory, *preprint*, [arXiv:2201.12361](https://arxiv.org/abs/2201.12361).

* corresponding author

AWARDS 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

TALKS

On quantum groupoids and their applications in quantum double models. Advances in Quantum Algebras, BIMSA, January 2024

On weak Hopf symmetry and weak Hopf quantum double model. BIMSA-Tsinghua Quantum Symmetry Seminar, BIMSA, December 2023

Boundary theory of 2d Hopf quantum double models. BIMSA-MCM-YMSC Postdoc Workshop, YMSC, Tsinghua University, October 2023

Boundary theory for Kitaev's quantum double model. Mathematics Graduate Research Day, Purdue University, November 2022

Boundary theories of 2d generalized quantum double model. 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)

REFERENCES

Uli Walther, Purdue University, Email: walther@purdue.edu

Donu Arapura, Purdue University, Email: arapura@purdue.edu

Shawn X. Cui, Purdue University, Email: cui177@purdue.edu

Dominic Naughton (teaching), Purdue University, Email: dnaughto@purdue.edu

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