Chi Zhang

Contact Information

Department of Mathematics
Indiana University
831 East 3rd Street
Bloomington, IN 47405
USA

(+1) 812-671-7220
czh4@iu.edu
Personal Website

Education

Indiana University

PhD Student in Mathematics, 2023 – present

Institute of Theoretical Physics, Chinese Academy of Sciences

M.S. in Theoretical Physics, 2018 – 2022

Nanjing University

B.S. in Physics, 2014– 2018.

Scientific Research Experience

2024–present	Generative AI and Quantum Computing Advisor: Prof. Lei Jiang, Indiana University
2024–2025	Theory of Quantum Programming Languages Advisor: Prof. Larry Moss, Indiana University
2023–2024	Natural Language Processing and Quantum Natural Language Processing Advisor: Prof. Damir Cavar, Indiana University
2021–2022	The Pati-Salam model and intersecting $D6-$branes Advisor: Prof. Tianjun Li, Institute of Theoretical Physics, Chinese Academy of Sciences.
2019–2021	The Batalin-Vilkovisky formalism and homological methods. Advisor: Prof. Si Li, Yau Mathematical Sciences Center, Tsinghua University.
2017–2018	The muon anomalous magnetic moment and the Standard Model. Advisor: Prof. Tianjun Li, Institute of Theoretical Physics, Chinese Academy of Sciences.
2016–2017	Geometric phases in condensed matter physics Advisor: Prof. Jinsheng Wen, Department of Physics, Nanjing University.

Preprints

Chi Zhang, Lei Jiang and Fan Chen, *Qracle: A Graph-Neural-Network-based Parameter Initializer for Variational Quantum Eigensolvers*, arXiv:2505.01236

Lei Jiang, Chi Zhang and Fan Chen, *QSeer: A Quantum-Inspired Graph Neural Network for Parameter Initialization in Quantum Approximate Optimization Algorithm Circuits*, arXiv:2505.06810

Publications

Chi Zhang, Akriti Kumari and Damir Cavar, *Entangled Meanings: Classification and Ambiguity Resolution in QNLP*, 2024 IEEE International Conference on Quantum Computing and Engineering, Montreal, Canada, 2024. DOI: 10.1109/QCE60285.2024.10355

Damir Cavar and Chi Zhang, *Semantic Similarities using Classical Embeddings in Quantum NLP*, 2024 IEEE International Conference on Quantum Computing and Engineering, Montreal, Canada, 2024. DOI:10.1109/QCE60285.2024.10350

Tianjun Li, Rui Sun, and Chi Zhang, *Four-Family $\mathcal{N} = 1$ Pati-Salam Models from Intersecting D6-Branes*, Communications in Theoretical Physics, Vol. 74, No. 6, 2022. DOI: 10.1088/1572-9494/ac6747

Service

2025 **International Conferencee on Computer-Aided Design (ICCAD)**
Track 1.3 AI Algorithms and Applications Reviewer

Teaching

Indiana University

2025	Spring	M106 *Mathematics of Decision and Beauty*	Recitation Leader
2024	Fall	M106 *Mathematics of Decision and Beauty*	Recitation Leader
2024	Summer	M106 *Mathematics of Decision and Beauty*	Recitation Leader
2024	Spring	M106 *Mathematics of Decision and Beauty*	Recitation Leader
2023	Fall	M413 *Introduction to Analysis*	Grader
2023	Summer	Tier 1 Algebra Exam	Grader

Chinese Academy of Science

2020	Summer	*Introduction to Supersymmetry*	Grader

Talks

The Mathematics of Text Structure, Quantum NLP Study Group, Indiana University, Bloomington, USA. (February 2024)

D–Branes in String Theory, String Theory Seminar, Institute of Theoretical Physics, Chinese Academy of Sciences, Beijing, China. (March 2022)

Differential Geometry of Gerbes, Geometry and Physics Seminar, Institute of Theoretical Physics, Chinese Academy of Sciences, Beijing, China. (October 2021)

Differential Cohomology and Classical Chern-Simons Theory, Mathematical Physics Seminar, Tsinghua University, Beijing, China. (August 2021)

Axelrod-Singer Invariants of Perturbative Chern-Simons Theory, Geometry and Physics Seminar for Students, Yau Mathematical Sciences Center, Tsinghua University, Beijing, China. (April 2020)

Topological Quantum Field Theories and Modular Functors, Mathematical Physics Seminar, Tsinghua University, Beijing, China. (March 2020)

Fibration Property of the Renormalized Quantum Master Equations, Geometry and Physics Seminar for Students, Yau Mathematical Sciences Center, Tsinghua University, Beijing, China. (December 2019)

Regularization and Renormalization in the Batalin-Vilkovisky Formalism, Geometry and Physics Seminar for Students, Yau Mathematical Sciences Center, Tsinghua University, Beijing, China. (December 2019)

Scholarships

2025	*Hazel King Thompson Fellowship*, Department of Mathematics, Indiana University
2024	*IEEE QCE 24 Student Travel Grant*, NSF and IEEE Computer Society
2023	*Mathematics Research Incentive Grant*, Department of Mathematics, Indiana University
2023	*William P. Ziemer Student Assistance Fellowship*, Department of Mathematics, Indiana University
2019–2022	*Research Assistant Fellowship*, Institute of Theoretical Physics, Chinese Academy of Sciences
2018–2021	*Academic Scholarship for Graduate Students*, University of Chinese Academy of Sciences
2016–2017	*Aegon Industrial Fund Scholarship for Responsibility*, Nanjing University
2016–2017	*Scholarship of Excellence*, Institute of High Energy Physics, Chinese Academy of Sciences
2015–2016	the *People's Scholarship*, honorable mention, Nanjing University