Peng Yang

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Birth: Feb 2000

Education

- Ph.D. in Mathematics, 2020-2026 — Tsinghua University.
  Supervised by Si Li
- B.Sc. in Mathematics, 2016-2020 — University of Science and Technology of China.

Research Interests

Mathematical Physics; Quantum Field Theory. My current research focuses on holomorphic/topological field theories, vertex algebras, index theorems, and probability approach to quantum field theories.

Research Works

- *Higher Dimensional Vertex Algebras in Topological-holomorphic Field Theories*, in preparation.
- *Constructible Cohomology*, in preparation.
- *On the Formality of Configuration Spaces* (with S. Li and J. Zhou), in preparation.
- *Chiral Deformation of CFT and BRST Reduction of Vertex Algebras* (with S. Li and X. Xiang), in preparation.
- *On the Dolbeault Cohomology of Configuration Spaces*, arXiv:2509.04756 [math.AT].
- *Stochastic Calculus and Hochschild Homology* (with S. Li and Z. Wang), arXiv:2501.12360 [math.PR].
- *Topological Quantum Mechanics on Orbifolds and Orbifold Index* (with S. Li), PAMQ, 21 No.4 (2025).

Teaching Experiences

- Teaching Assistant, *Mathematical Methods in Quantum Mechanics*, Fall 2024.
- Teaching Assistant, *Quantum Mechanics*, Fall 2023.
  - Typed lecture notes for Si Li: *Quantum Mechanics and Geometry*.
- Teaching Assistant, *Electrodynamics*, Spring 2023.
  - Typed lecture notes for Si Li: *Electromagnetism and Geometry*.
- Teaching Assistant, *Classical Mechanics*, Fall 2022.
  - Typed lecture notes for Si Li: *Classical Mechanics and Geometry*.
- Teaching Assistant, *Physics*, the Yau Tsinghua Mathcamp, Summer 2020.
- Teaching Assistant, *Advanced Linear Algebra*, Spring 2020, Fall 2021, Spring 2021.
- Teaching Assistant, *Linear Algebra*, Fall 2018, Fall 2020.

Teaching Materials

- Authored lecture notes: *Guidance on Solving Linear Algebra Problems* (in preparation).

Talks

- Jan 2026, *Topological Quantum Mechanic and Index theory*, Seoul National University.
- Jun 2025, *Stochastic Calculus and Hochschild Homology*, Nankai University.
- Dec 2024, *Topological Quantum Mechanics on Orbifolds and Orbifold Index*, Beijing Institute of Mathematical Sciences and Applications.
- Dec 2023, *Cohomology of Configuration Spaces*, Geometry and Physics seminar, Tsinghua University.