Zijie Zhuang

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Education

University of Pennsylvania   2021–2026 (expected)
Ph.D. student in Statistics
Advisors: Jian Ding and Xin Sun

Peking University   2017–2021
B.S. in Mathematics

Research interests

Probability theory with focus on statistical mechanics and random geometry.

Articles

1. **Three-point connectivity constant for q-state Potts spin clusters**, with Gefei Cai, Haoyu Liu and Baojun Wu. Preprint, arXiv:2510.05850.

2. **Schramm-Loewner evolution contains a topological Sierpiński carpet when κ is close to 8**, with Haoyu Liu. Preprint, arXiv:2506.09609.

3. **Bounds on the distance exponent for higher-dimensional Liouville first passage percolation**, with Andres A. Contreras Hip. Preprint, arXiv:2504.09141.

4. **Mixing rate exponent of planar Fortuin-Kasteleyn percolation**, with Haoyu Liu and Baojun Wu. Preprint, arXiv:2502.09950.

5. **Percolation of thick points of the log-correlated Gaussian field in high dimensions**, with Jian Ding and Ewain Gwynne. Preprint, arXiv:2410.22075.

6. **Dynamical random field Ising model at zero temperature**, with Jian Ding and Peng Yang. Accepted by *Probability Theory and Related Fields*. arXiv:2410.20457.

7. **The bulk one-arm exponent for the CLE$_{\kappa'}$ percolations**, with Haoyu Liu, Xin Sun and Pu Yu. Preprint, arXiv:2410.12724.

8. **Backbone exponent and annulus crossing probability for planar percolation**, with Pierre Nolin, Wei Qian and Xin Sun. *Physical Review Letters,* 134(11), 2025.

9. **Annulus crossing formulae for critical planar percolation**, with Xin Sun and Shengjing Xu. Preprint, arXiv:2410.04767.

10. **Boundary touching probability and nested-path exponent for non-simple CLE**, with Morris Ang, Xin Sun and Pu Yu. *Annals of Probability*, 53(3), 2025.

11. **Tightness of exponential metrics for log-correlated Gaussian fields in arbitrary dimension**, with Jian Ding and Ewain Gwynne. Preprint, arXiv:2310.03996.

12. **Backbone exponent for two-dimensional percolation**, with Pierre Nolin, Wei Qian and Xin Sun. Preprint, arXiv:2309.05050.

13. **Sharp asymptotics for arm probabilities in critical planar percolation**, with Hang Du, Yifan Gao and Xinyi Li. *Communications in Mathematical Physics*, 405(8), 2024.

14. **On large deviations and intersection of random interlacements**, with Xinyi Li. *Bernoulli*, 30(3), 2024.

15. **Long range order for random field Ising and Potts models**, with Jian Ding. *Communications on Pure and Applied Mathematics*, 77(1), 2024.

16. **On the percolative properties of the intersection of two independent interlacements**. *ALEA Lat. Am. J. Probab. Math. Stat.*, 18, 2021.

Awards

1. J. Parker Memorial Bursk Prize for Excellence in Research, University of Pennsylvania   2025

2. Weiming Scholarship (for Outstanding Undergraduate Researchers), Peking University   2021

Teaching

I am a teaching assistant for STAT 9300 (Probability theory) in Fall 2025 and was in Fall 2022.

I was a undergraduate research mentor for Maxmillian Tjauw in Spring 2022.

Professional Service

I have been a reviewer for Ann. Appl. Probab., PMP, Proc. London Math. Soc., Trans. Amer. Math. Soc., and AFST.

Talks

1. CFT program at Institut Pascal   10/2025

2. International Conference for Young Chinese Probabilists   8/2025

3. PKU Probability Seminar   6/2025

4. MIT Probability Seminar   4/2025

5. Two-Dimensional Random Geometry Workshop   7/2024

6. UW Madison Probability Seminar   4/2024

7. KPZ meets KPZ Workshop   3/2024

8. UChicago Probability Seminar   2/2024

9. Percolation Today Webinar   11/2023

10. BICMR Summer School on Probability   6/2023

11. Random Geometry and Statistical Physics Workshop   10/2022

12. Penn Local Probability Seminar   4/2022

13. THU-PKU-BNU Joint Probability Webinar   12/2021

14. Percolation Today Webinar   10/2021

(Last updated: Nov 21, 2025)