Contact Information

NSF Postdoctoral Fellow, Stanford University 2021-Present

Address:	Department of Mathematics
	Stanford University
	Stanford CA 94087
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Education

Sep 2012- May 2016	AB	Mathematics	Princeton University
	Minors	Computer Science	Applied Math
Sep 2016-2021	PhD	Mathematics	Harvard University

Dissertation Adviser: Professor Horng-Tzer Yau

Research Interests:Probability and Statistical Physics. Lattice Gauge Theories, KPZ Universality, Random Walks, Random Matrices, Spin Glasses

Papers and Preprints

1. with Z. Che *Edge Universality of Correlated Matrices. Elec. Jour. Probab.* Volume 24 (2019), No. 44.

2. with J. Huang *Dyson Brownian Motion for General β and Potential at the Edge. Prob. Theory and Rel. Fields*, Volume 178 (2020), pages $893-950$

3. with M. Lemm and H.T Yau *Global Eigenvalue Distribution of Matrices Defined by the Skew-shift. Anal. and PDE,* Volume 14 (2021), No. 4

4. *Spin Distributions for Generic Spherical Spin Glasses. Elec. Jour. Probab.*, Volume 27 (2022)

5. with C. Brennecke *Free Energy of the Quantum Sherrington-Kirkpatrick Model. Jour. of Math. Phys.*, Volume 61 (2020), Issue 8.

6. with C. Brennecke and B. Schlein *Bose-Einstein Condensation Beyond the Gross-Pitaevskii Regime. Annales Henri-Poincare*, Volume 22 (2021), pages 1163-1263

7. with M. Lemm *A Local Law for Singular Values from Diophantine Equations. Intl. Math. Res. Not.*, Volume 2023 (2021), Issue 5, pages 3907-3947

8. With C. Brennecke, P. Von Soosten, and H.T Yau *Dynamical Approach to the TAP Equations for the Sherrington-Kirkpatrick Model. J. Stat. Phys.*, Volume 183 (2021), No. 35

9. *Wilson Loop Expectations for Non-Abelian Gauge Fields Coupled to a Higgs Boson at Low and High Disorder.* Accepted *Comm. Math. Phys.*, arXiv:2111.07540

10. with M. Lemm *Universal Eigenvalue Statistics for Dynamically Defined Matrices. Jour. D' Anal. Math.* to appear, arXiv:2201.00851

11. with B. Landon *Local Law and Rigidity for Unitary Brownian Motion. Prob. Theory Rel. Fields* to appear, arXiv:2202.06714

12. with S. Cao *Correlation Decay for Finite Lattice Gauge Theories at Weak Coupling.* Submitted, arXiv:2202.10375

13. with S. Chatterjee *An Invariance Principle for the 1D KPZ Equation. Anal. Prob.* to appear,arXiv:2208.02492

14. with C. Brennecke, C. Xu, and H.T. Yau *Spectral Gap Estimates for Mixed p-Spin Models at High Temperature.* Accepted *Prob. Theory Rel. Fields*, arXiv:2208.07844

15. with S. Dubova, C. Xu and J. Yin *Eigenstate Thermalization Hypothesis for Generalized Wigner Matrices.* Submitted,arXiv:2302.00157

16. with I. Okada *Deviations of the Intersection of Brownian Motions in Dimension Four with General Kernel.* arXiv:2304.12101

17. with I. Okada *Moderate Deviations of the Capacity of the Range of a Simple Random Walk.* arXiv: 2310.07685

18. with A. Dembo *Limiting Spectral Measure for Uniform d-Regular Digraphs.* arXiv:2310.14132

Conferences and Presentations

2023: Speaker at UC Davis Probability Seminar, Stanford Probability Seminar, LA Probability Forum, Harvard CMSA Probability Seminar, UCSD Probability Seminar, Columbia Probability Seminar, University of Pennsylvania Probability Seminar

2022: Speaker at Stanford Probability Seminar, Berkeley Probability Seminar

2021: Speaker at UCLA Probability Seminar

2020: Speaker at Cornell Probability Seminar, WIAS Berlin, Stanford Probability Seminar, Yale Analysis Seminar

2019: Speaker at AMS Graduate Student Conference Brown, Participant in Workshop: From Many Body Problems to Random Matrices at BIRS, Banff, Alberta, Canada

Teaching Experience

- Math 21b Graduate Course Assistant(GCA), Spring 2018, Harvard

- Math 1b Teaching Fellow(TF), Spring 2019, Harvard

- Math 1b Teaching Fellow(TF), Fall 2019, Harvard

- Math 115 Instructor, Fall 2022, Stanford

- Math 158 Instructor, Spring 2023, Stanford

Honors and Awards

- NSF Postdoctoral Fellowship 2021-2024

- Harvard Graduate Society Term-time Research Fellowship 2020-2021(Awarded to 1-2 students in Math Dept. per Year)

- William Lowell Putnam Competition Honorable Mention 2012,2015

- George B. Covington Prize, Top Two Undergraduates in Math Department of Princeton 2016

- Peter A. Greenberg '77 Prize, Top Two Undergraduates in Math Department of Princeton 2015

- Harold A. Shapiro Prize, Top 40 Undergraduates Princeton, 2014

- Phi Beta Kappa, (Top tenth of Graduating Class) 2016

Organized Seminars

- Trivial Notions, Harvard University, Fall 2017
- Stanford Probability Seminar, Fall 2021
- Stanford Probablity Seminar(Co-Organizer) , Fall 2023

Other

Citizenship: United States of America

Programming Languages: Java, C, C++, Matlab, Python, Tensorflow, Scikit-Learn

Languages: English(Native), Spanish(Proficient)