Pax Kivimae

University of Colorado, Colorado Springs
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RESEARCH INTERESTS

Probability Theory, Statistical Physics, Random Matrix Theory, Spin Glass Theory, Random Media

EDUCATION

Ph.D., Mathematics — 2016 - 2022
Northwestern University — *Evanston, IL*
Advisor: Antonio Auffinger

B.S. and M.A., Mathematics — 2013 - 2016
University of California, Los Angeles — *Los Angeles, CA*

EMPLOYMENT

Assistant Professor — 2025 - Current
University of Colorado, Colorado Springs — *Colorado Springs, CO*

NSF Postdoctoral Fellow — 2022 - 2025
Courant Institute of Mathematical Sciences — *New York, NY*

PAPERS

1. G. Ben Arous, P. Kivimae, *Wandering Exponents and The Free Energy of High-Dimensional Elastic Polymers*, submitted.

2. G. Ben Arous, P. Kivimae, *The Larkin Mass and Replica Symmetry Breaking in The Elastic Manifold*, arXiv:2410.19094, submitted.

3. G. Ben Arous, P. Kivimae, *Free Energy of the Elastic Manifold*, arXiv:2410.19094 *to appear in*: Annales de Toulouse

4. P. Kivimae, *Moments of Characteristic Polynomials of Non-Symmetric Random Matrices*, Journal of Statistical Physics, 2025

5. P. Kivimae, *Concentration of Equilibria and Relative Instability in Disordered Non-Relaxational Dynamics*. Communications in Mathematical Physics 2024

6. P. Kivimae, *The Ground State Energy and Concentration of Complexity in Spherical Bipartite Models*, Communications in Mathematical Physics, 2023

7. P. Kivimae, *Gaussian multiplicative chaos for Gaussian orthogonal and symplectic ensembles*, Electronic Journal of Probability, 2024.

8. P. Kivimae, *Critical Fluctuations for the Spherical Sherrington-Kirkpatrick Model in an External Field*, *arXiv:1908.07512*

TALKS

The Larkin Mass and The Free Energy of The Elastic Manifold
Phase Transitions and Dynamics in Random Media, McGill University — June 2025

Relative Instability and the Number of Real Eigenvalues of A Random Tensor
Random Tensors and Related Topics, Institut Henri Poincaré October 2024

Free Energy of The Elastic Random Manifold
Lehigh Probability Seminar April 2024

The Larkin Mass and The Free Energy of The Elastic Manifold
Northeast Probability Seminar November 2023

Relative Instability and Concentration of Equilibria in Non-Gradient Dynamics
Temple University/University of Pennsylvania Probability Seminar November 2023

Gaussian Multiplicative Chaos Limits for Random Symmetric Matrices
Summer School on Random Matrix Theory and Its Applications May 2023

Relative Instability and Concentration of Equilibria in Non-Gradient Dynamics
Montréal Probability Seminar February 2023

Concentration of Equilibria and Relative Instability in the Asymmetric p-Spin Model
New York University Probability Seminar December 2022

Gaussian Multiplicative Chaos Limits for Random Symmetric Matrices
University of Sussex Probability Seminar April 2022

The Ground-State Energy and Concentration of Complexity in Spherical Bipartite Models
University of Wisconsin: Madison Probability Seminar February 2022

Gaussian Multiplicative Chaos Limits for Gaussian Orthogonal and Symplectic Ensembles
University of Oxford: Random Matrix Theory Seminar January 2022

The Ground-State Energy and Concentration of Complexity in Spherical Bipartite Models
University of Basel Probability Seminar September 2021

Continuum Limits for Random Quadratic Optimization
Northeast Probability Seminar November 2019

Applications of Gamma Cohomology to Obstruction Theory
Talbot Workshop April 2017

POSTERS

The Larkin Mass and Free Energy of The Elastic Manifold
Cincinnati Symposium on Probability May 2024

Concentration of Equilibria and Relative Instability in the Asymmetric p-Spin Model
Southern California Probability Symposium May 2023

Concentration of Complexity for the Asymmetric p-spin Glass Model
Workshop on Spin Glasses, SwissMAP September 2022

AWARDS & HONORS

NSF Mathematical Sciences Postdoctoral Research Fellowship (2022)

Northwestern University Department of Mathematics Best Thesis Award (2022)

UCLA Sherwood Scholarship (2016)

UCLA Undergraduate Math Scholar Award (2014)