

Christopher Janjigian

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Academic Profile

Associate Professor, Department of Mathematics, Purdue University	2026–present
Assistant Professor, Department of Mathematics, Purdue University	2020–2026
Postdoctoral Fellow, University of Utah	2017–2020
Postdoctoral Fellow, Université Paris Diderot	2016–2017
Ph.D., University of Wisconsin–Madison Advisor: Benedek Valkó	2016
M.S., University of Wisconsin–Madison	2013
B.S., Lake Forest College	2010

Research keywords. Disordered media models; random walks in random potentials; Kardar–Parisi–Zhang universality class; last-passage percolation; directed polymers; stochastic PDE and continuum models.

Research Output

Preprints

C. Janjigian, F. Rassoul-Agha, and T. Seppäläinen. Strong existence and uniqueness of the tilt-indexed Busemann process in the planar corner growth model.	2025
M. Damron, J. Hanson, C. Janjigian, W.-K. Lam, and X. Shen. Estimates for the empirical distribution along a geodesic in first-passage percolation.	2024
C. Janjigian, F. Rassoul-Agha, and T. Seppäläinen. Ergodicity and synchronization of the Kardar–Parisi–Zhang equation.	2022
T. Alberts, C. Janjigian, F. Rassoul-Agha, and T. Seppäläinen. The Green’s function of the parabolic Anderson model and the continuum directed polymer.	2022
E. Emrah, C. Janjigian, and T. Seppäläinen. Right-tail moderate deviations in the exponential last-passage percolation.	2020

Published Papers

E. Emrah, C. Janjigian, and T. Seppäläinen. Anomalous geodesics in the inhomogeneous corner growth model. <i>Communications in Mathematical Physics</i> 406 (316).	2025
S. Groathouse, C. Janjigian, and F. Rassoul-Agha. Non-existence of non-trivial bi-infinite geodesics in geometric last-passage percolation. <i>Journal of Statistical Physics</i> 192 (81).	2025
S. Groathouse, C. Janjigian, and F. Rassoul-Agha. Existence of generalized Busemann functions and Gibbs measures for random walks in random potentials. <i>Transactions of the American Mathematical Society</i> 378 (12).	2025

E. Emrah, C. Janjigian, and T. Seppäläinen. Optimal-order exit point bounds in exponential last-passage percolation via the coupling technique. <i>Probability and Mathematical Physics</i> 4 (3), 609–666.	2023
C. Janjigian, F. Rassoul-Agha, and T. Seppäläinen. Geometry of geodesics through Busemann measures in directed last-passage percolation. <i>Journal of the European Mathematical Society</i> 25 (7), 2573–2639.	2023
C. Janjigian, S. Nurbavliyev, and F. Rassoul-Agha. A shape theorem and a variational formula for the quenched Lyapunov exponent of random walk in a random potential. <i>Annales de l'Institut Henri Poincaré, Probabilités et Statistiques</i> 58 (2), 1010–1040.	2022
E. Emrah, C. Janjigian, and T. Seppäläinen. Flats, spikes and crevices: the evolving shape of the inhomogeneous corner growth model. <i>Electronic Journal of Probability</i> 26, 1–45.	2021
C. Janjigian and F. Rassoul-Agha. Uniqueness and ergodicity of stationary directed polymer models on the square lattice. <i>Journal of Statistical Physics</i> 179, 672–689.	2020
C. Janjigian and F. Rassoul-Agha. Busemann functions and Gibbs measures in directed polymer models on Z^2 . <i>Annals of Probability</i> 48 (2), 778–816.	2020
C. Janjigian. Upper tail large deviations in Brownian directed percolation. <i>Electronic Communications in Probability</i> 24 (45), 1–10.	2019
D. Crisan, C. Janjigian, and T. G. Kurtz. Particle representations for stochastic partial differential equations with boundary conditions. <i>Electronic Journal of Probability</i> 23 (65), 1–29.	2018
E. Emrah and C. Janjigian. Large deviations for some corner growth models with inhomogeneity. <i>Markov Processes and Related Fields</i> 23, 267–312.	2017
C. Janjigian. Large deviations of the free energy in the O'Connell–Yor polymer. <i>Journal of Statistical Physics</i> 160 (4), 1054–1080.	2015

Support and Recognition

External Support

Simons Foundation MPS-TSM-00012155, <i>Stationary random growth and the Kardar–Parisi–Zhang universality class</i> , PI, \$42,000	2025–2030
National Science Foundation DMS-2125961, <i>Random Walks in Random Potentials</i> , PI, \$131,222	2021–2025

Honors

Purdue University Spira Excellence in Undergraduate and Graduate Teaching Award	2025
University of Wisconsin–Madison Capstone Ph.D. Teaching Award	2015
University of Wisconsin–Madison Mathematics Department Teaching Award	2015–2016
University of Wisconsin–Madison College of Letters and Sciences Teaching Fellow	2014

Teaching, Graduate Students, and Service

Teaching

Purdue University. MA/STAT 416 Introduction to Probability; MA 341 Foundations of Analysis; MA/STAT 532 Elements of Stochastic Processes; MA/STAT 538–539 Probability Theory I–II; MA 495/595 Introduction to Stochastic Calculus.

University of Utah. Introduction to Probability; Stochastic Processes and Simulation I–II.

Graduate Students

Vicente Lossada (current)

Service

Purdue Probability Seminar, organizer 2020–present

Purdue Faculty Association, co-chair 2023–present

Mathematics Department Computer Committee, member 2024–present

Purdue Teachers' Math Circle, co-organizer 2024–present

Referee service. Annales de l'Institut Henri Poincaré; Annals of Probability; Communications in Mathematical Physics; Electronic Communications in Probability; Electronic Journal of Probability; Journal of the European Mathematical Society; Journal of the London Mathematical Society; Journal of Statistical Physics; Probability Theory and Related Fields; Transactions of the American Mathematical Society.

Grant review panels. National Science Foundation and Simons Foundation.

Member, American Mathematical Society, Institute of Mathematical Statistics, and Bernoulli Society.