

# Rahul Rajkumar

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## Education

### Ph.D. Candidate in Mathematics

Expected Graduation: Spring 2025

University of California, Riverside

Concentrations: Probability Theory, Stochastic Processes, Non-Archimedean Analysis

Thesis Title: TBD

Advisor: David Weisbart

### M.S. in Applied Mathematics

Spring 2023

University of California, Riverside

### B.A. in Mathematics

Spring 2020

New York University

## Publications

Rajkumar, Rahul. "Lévy Forgery and Onsager-Machlup Functionals for  $p$ -adic Brownian Motion." *In Progress*.

Rajkumar, Rahul, and David Weisbart. "Brownian Motion in  $p$ -adic Fields and Ramification." *In Progress*.

Pierce, Tyler, Rahul Rajkumar, Andrea Stine, David Weisbart, and Adam M. Yassine. "Brownian Motion in a Vector Space over a Local Field Is a Scaling Limit." *Expositiones Mathematicae* 42, no. 6 (December 1, 2024): 125607. <https://doi.org/10.1016/j.exmath.2024.125607>.

Rajkumar, Rahul, and David Weisbart. "Components and Exit Times of Brownian Motion in Two or More  $p$ -Adic Dimensions." *Journal of Fourier Analysis and Applications* 29, no. 6 (November 20, 2023): 75. <https://doi.org/10.1007/s00041-023-10053-z>.

## Presentations

### Invited

"Diffusion Experiments in a  $p$ -adic Universe," Virtual Research Seminar on Non-Archimedean Analysis and Mathematical Physics, University of Texas Rio Grande Valley, September 21, 2022.

### Contributed

"Elements and Applications of  $p$ -adic Analysis," 48th Annual New York State Regional Graduate Mathematics Conference, Syracuse University, April 1, 2023.

"Components and Exit Times of Brownian Motion in Multiple  $p$ -Adic Dimensions (Extended)," AMS Joint Mathematics Meeting Special Session on Advances in Markov Models, Boston, January 7, 2023.

"Components and Exit Times of Brownian Motion in Multiple  $p$ -Adic Dimensions," AMS Joint Mathematics Meeting Contributed Paper Session on Probability Theory and Stochastic Processes, Boston, January 6, 2023.

## Awards and Honors

M.M. Rao Award for Probability Theory or Functional Analysis (\$10,000)	2023 – 2024
UC Riverside Jones Fellowship (\$3,500)	2022 – 2023
UC Riverside Chancellor’s Distinguished Fellowship	2020 – 2025

## Service, Outreach, & Miscellany

Undergraduate Research Experience Mentor Spring 2024

Led an Undergraduate Research Experience (Math 197) on the topic of Brownian motion on manifolds and Varadhan’s Formula in the context of Varadhan’s 1967 paper “On the Behavior of the Fundamental Solution of the Heat Equation with Variable Coefficients”

UC Riverside AMS Student Chapter Treasurer 2023 – 2025

UC Riverside Pacific Math Alliance Graduate Mentor 2022 – 2023

CLL-New Math Gateway Supplementary Instruction Developer Summer 2022

Citizenship: USA

Musical Instruments: Saxophone, Bassoon, Clarinet

UC Riverside Wind Ensemble Bassoonist

## Teaching Experience

### Instructor (UC Riverside)

Math 9B	First-Year Calculus	Summer 2024
Math 5A	The Principles of Calculus I	Fall 2022

### Teaching Assistant (UC Riverside)

Math 5A	The Principles of Calculus I	Fall 2024
Math 5C	The Principles of Calculus III	Spring 2024
Math 7A	Calculus for Life Sciences	Spring 2024
Math 6B	Precalculus II	Winter 2024
Math 6A	Precalculus I	Winter 2024
Math 5A	The Principles of Calculus I	Fall 2023
Math 7A	Calculus for Life Sciences	Spring 2023
Math 45/EE 20A	Introduction to Ordinary Differential Equations	Spring 2023
Math 9A	First-Year Calculus	Winter 2023
Math 46	Introduction to Ordinary Differential Equations	Winter 2023
Math 149B	Probability and Mathematical Statistics	Winter 2023
Math 11	Introduction to Discrete Mathematics	Summer 2022
Math 149A	Probability and Mathematical Statistics	Summer 2022

Math 9A	First-Year Calculus	Spring 2022
Math 46	Introduction to Ordinary Differential Equations	Spring 2022
Math 153	History of Mathematics	Spring 2022
Math 11	Introduction to Discrete Mathematics	Winter 2022
Math 31	Applied Linear Algebra	Fall 2021
Math 132	Linear Algebra II	Spring 2021
Math 149B	Probability and Mathematical Statistics	Spring 2021
Math 121	Game Theory	Winter 2021
Math 6A	Introduction to College Mathematics for the Sciences	Winter 2021
Math 5	Precalculus	Fall 2020
Math 151A	Advanced Calculus (Real Analysis)	Fall 2020