Kevin Hu

Contact and Personal Information

Brown University,
Division of Applied Mathematics,
Room 111, 170 Hope Street,
Providence, RI 02906.

Personal Website
Email: kevin_hu@brown.edu
US Citizen

Research Interests

Probability Theory, Nonlinear Partial Differential Equations, Interacting Particle Systems, Mathematical Physics, Mathematical Neuroscience.

Upcoming Appointments

07/2025 - 06/2028 Simons Junior Fellow, **Columbia University**
Mentor: Daniel Lacker

Education

May 2025 PhD in Applied Mathematics, **Brown University**
Advisor: Kavita Ramanan
May 2021 MA in Applied Mathematics, **Brown University**
May 2019 BA in Mathematics with Minor in Computer Science, **NYU**

Awards and Honors

December 2024 Junior Fellowship, Simons Foundation
September 2024 Best Conference Poster Award, ICERM
May 2024 Stella Dafermos Award, Brown University
April 2024 Research Matters Award, Brown University
September 2019 Graduate Fellowship, Brown University
June 2018 Undergraduate Research Fellowship, Fields Institute

Preprints and Publications

1. **Hu, K.** , Ramanan, K., (2025). "A case study of the long-time behavior of the Gaussian local-field equation" *arXiv preprint arXiv:2504.06449*.
2. **Hu, K.** , Ramanan, K., (2024). "An H-theorem for conditional McKean-Vlasov processes related to interacting diffusions on regular trees." *arXiv preprint arXiv:2412.07710*.
3. **Hu, K.** , Ramanan, K., Salkeld, W. (2024). "A mimicking theorem for processes driven by fractional Brownian motion." *arXiv preprint arXiv:2405.08803*.
4. **Hu, K.**, Ramanan, K., Salkeld, W. (2024). "The fundamental martingale with applications to Markov random fields". *arXiv preprint arXiv:2405.08795*.
5. Amin, K., Huang, J. M., **Hu, K.** J., Zhang, J., Ristroph, L. (2019). "The role of shape-dependent flight stability in the origin of oriented meteorites." *Proceedings of the National Academy of Sciences*, 116(33), 16180-16185.

Teaching and Mentoring

Summer 2024	Teaching Assistant, Graduate Bridge Program
Summer 2022	Instructor, Graduate Bridge Program in Analysis
Fall 2020 - Spring 2022	Directed Reading Program Mentor, Stochastic Calculus
Fall 2021	Sheridan Center Certificate in Reflective Teaching
Spring 2021	Teaching Assistant, Statistical Inference II
Fall 2020	Teaching Assistant, Statistical Inference I
Spring 2020	Instructor, CCRI Prison Teaching Program
Fall 2018 - Spring 2019	Undergraduate Mathematics Tutor

Invited Talks

1. *Long-time behavior of interacting diffusions on sparse graphs*, Oberseminar dynamics seminar (May 2025).
2. *An H-theorem for the Markov local-field equation*, Probability seminar, Brown University (March 2025).
3. *Interacting diffusions on sparse graphs and the local-field equation*, ORFE student seminar, Princeton University (Feburary 2025).
4. *An H-Theorem for a conditional McKean-Vlasov process related to interacting diffusions on regular trees*, Mathematical finance seminar, University of Michigan (December 2024).
5. *Stochastic dynamics for sparsely interacting neurons*, Neural network seminar, Brown University (October 2024).

Professional Activities

1. Directed Reading Program Organizer, Brown University (Spring 2022 - Spring 2025)
2. Reviewer for *Annals of Applied Probability*, *SIAM Journal on Applied Dynamical Systems*, *Bernoulli*, *Discrete and Continuous Dynamical Systems*.