JOHNNY (YIFAN) YANG

Indiana University Bloomington Department of Mathematics ◇ Bloomington, IN 47405
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EDUCATION

Indiana University Bloomington *August 2019 - Present*
Ph.D. in Mathematics
Advisor: Prof. Louis (Wai-Tong) Fan

University of Arizona *August 2015 - May 2018*
B.S. in Mathematics, Magna Cum Laude
Minor in Finance

RESEARCH INTERESTS

Probability theory and its applications, stochastic analysis, stochastic partial differential equations, interacting particle systems, stochastic quantization, mathematical biology.

HONORS AND AWARDS

- William P Ziemer Award, Indiana University Bloomington, 2024.
- College of Arts and Sciences Fellowship, Indiana University Bloomington, 2020.
- Excellence in Undergraduate Research Award, Department of Mathematics, University of Arizona, 2018.

PUBLICATIONS AND WORK IN PROGRESS

1. Louis Fan, Zhenyao Sun, and Johnny Yang. On stochastic partial differential equations on metric measure spaces. *Coming soon*, 2024
2. Hongyi Chen and Johnny Yang. Singular spdes on metric measure spaces: the sub-gaussian case. *In preparation*, 2024+
3. Louis Fan, Adrián González Casanova, and Johnny Yang. On extinction of solutions to stochastic partial differential equations on metric graphs. *In preparation*, 2024+
4. Qiantong Liang, Johnny Yang, Wai-Tong Louis Fan, and Wing-Cheong Lo. Patch formation driven by stochastic effects of interaction between viruses and defective interfering particles. *PLOS Computational Biology*, 19(10), 2023
5. Wai-Tong Louis Fan, Yifan Johnny Yang, and Chaojie Yuan. Constrained langevin approximation for the togashi-kaneko model of autocatalytic reactions. *Mathematical Biosciences and Engineering*, 20(3):4322–4352, 2023

OTHER RESEARCH ACTIVITIES

Collaboration with John Yin (University of Wisconsin - Madison) under National Science Foundation (NSF) funding DMS-2348164, Fall 2024 - present.

- We aim to develop a spatial stochastic model for virus growth with mutations on two-dimensional domains.

Extinctions in multi-species stochastic systems, Indiana University, Fall 2023 - present
Collaboration with Louis Fan and John Yin

- We aim to study the extinction phenomenon in multi-species biological systems caused by stochastic effects.

Summer school Stochastic Quantization, Simons Laufer Mathematical Sciences Institute, Summer 2024.
Undergraduate Research Project, University of Arizona, Spring 2019
Under the guidance of Prof. Tom Kennedy

- Studied the behavior of site-avoiding random walks on the Manhattan lattice. Simulated trajectories of various self-avoiding random walks on two-dimensional lattices.

PRESENTATIONS

Talks

- Patch formation driven by stochastic effects, SIAM Conference on Mathematics of Data Science (MDS24), October 2024.
- Stability of Markov Process and Foster-Lyapunov Type Criteria Demonstration via Togashi-Kaneko Model, Graduate Probability Seminar, Indiana University Bloomington, September 2023.
- On Extinction Probability of Stochastic PDE on Metric Graphs, Graduate Student Probability Conference, University of Wisconsin–Madison, September 2022.

Poster Presentations

- SPDE on metric measure spaces, Recent Progress in Stochastic Analysis and its Applications, Loyola University Chicago, July 2024.
- On Extinction Probability of Stochastic PDE on Metric Graphs, Seminar on Stochastic Processes, University of Arizona, April 2023.
- On Extinction Probability of Stochastic FKPP on Metric Graphs, Seminar on Stochastic Processes, Lehigh University, April 2022.

PROFESSIONAL ACTIVITIES

Organizer, Graduate Probability Seminar at Indiana University Bloomington Fall 2023 - Spring 2024.

TEACHING EXPERIENCE

Mentoring, Indiana University, Bloomington

- Co-mentored an undergraduate woman for "Emerging Scholars Research Experience for Undergraduate Women," a year-long program at IU (August 2022 - May 2023).
- Co-mentored an undergraduate student for the Summer REU at Indiana University Bloomington (Summer 2023).

Recitation/Assisting, Indiana University, Bloomington

- Math-M 106: The Mathematics of Decisions and Beauty (Fall 2023)
- MATH–M 211: Calculus I (Spring 2022)
- Math-M 106: The Mathematics of Decisions and Beauty (Fall 2021)
- Math-M 106: The Mathematics of Decisions and Beauty (Summer 2021)
- Math-M 211: Calculus I (Spring 2021)
- Math-M 119: Brief Survey of Calculus I (Fall 2020)
- Math-M 118: Finite Mathematics with Applications (Summer 2020)
- Math-M 118: Finite Mathematics with Applications (Spring 2020)
- Math-M 303: Linear Algebra (Fall 2019)