

Jimmy He

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Education

- 2016-Now **Candidate for PhD in Mathematics** (expected 2021), *Stanford University*, Stanford, CA.
Advisor: Persi Diaconis
- 2011-2016 **Bachelor of Mathematics, Honors Mathematics**, *University of Waterloo*, Waterloo, ON.
Major: Pure Mathematics and Statistics

Research interests

Probability and algebraic combinatorics: random walks, permutation statistics, representation theory, Gelfand pairs

Preprints

- 2020 J. He, **Markov chains on finite fields with deterministic jumps**. arXiv:2010.10668
- P. Diaconis, J. He, I. M. Isaacs, **The square and add Markov chain**, submitted. arXiv:2008.11253
- J. He, **A central limit theorem for descents of a Mallows permutation and its inverse**, submitted. arXiv:2005.09802

Publications

- 2020 J. He, **A characteristic map for the symmetric space of symplectic forms over a finite field**, accepted to *Int. Math. Res. Not.* arXiv:1906.05966
- J. He, **Random walk on the symplectic forms over a finite field**, *Algebr. Comb.* arXiv:1910.10823
- 2019 J. He, **A power series identity and Bessel-type integrals over unitary groups**, *J. Math. Phys.* arXiv:1806.02441
- 2018 K. Hare, J. He, **A geometric proof of the L^2 -singular dichotomy for orbital measures on Lie algebras and groups**, *Boll. Un. Mat. Italian.* arXiv:1611.09105
- 2017 K. Hare, J. He, **The absolute continuity of convolution products of orbital measures in exceptional symmetric spaces**, *Monatsh. fur Math.* arXiv:1511.05799
- 2016 K. Hare, J. He, **Smoothness of convolution products of orbital measures on rank one compact symmetric spaces**, *Bull. Aust. Math. Soc.* arXiv:1510.06259

Conference proceedings

- 2019 J. He, **A characteristic map for the symmetric space of symplectic forms over a finite field**, (extended abstract of "A characteristic map for the symmetric space of symplectic forms over a finite field"), *Sém. Lothar. Combin.*

Invited talks

- Aug 2020 Junior Integrable Probability Seminar (online)
Jul 2020 Stanford University, Probability Seminar
Feb 2020 UC Berkeley, Probability Seminar
Jan 2016 University of Waterloo, Analysis Seminar

Other research presentations

- Aug 2020 Bernoulli-IMS One World Symposium, online
Jul 2020 Formal Power Series and Algebraic Combinatorics (FPSAC), online (poster)

Awards

- 2017-2020 NSERC Post-Graduate Scholarship
2016 Jessie W. H. Zou Memorial Award for Excellence in Undergraduate Research
2015 NSERC Undergraduate Student Research Award
2011 Rene Descartes Entrance Scholarship

Teaching Experience

- 2016-Now **Teaching Assistant**, *Stanford University*, Stanford, CA.
Math 51, Linear Algebra, Multivariable Calculus, and Modern Applications (Winter 2019, Summer 2020, Fall 2020)
Math 108, Introduction to Combinatorics and its Applications (Winter 2018)
Math 136, Stochastic Processes (Winter 2020)
Math 158, Basic Probability and Stochastic Processes with Engineering Applications (Spring 2017)
Math 159, Discrete Probabilistic Methods (Fall 2016)
Math 233C, Topics in Combinatorics (Fall 2016)
Math 382, Qualifying Examination Seminar (Summer 2019)
2017-Now **Mentor for Directed Reading Program**, *Stanford University*, Stanford, CA.

Service

- Referee: *Annals of Probability*
2018 Organizer of Faculty Area Research Seminar

Work Experience

- 2014 **Actuarial Intern**, *Ernst & Young*, New York, NY.
2014 **Actuarial Analyst**, *Munich Re*, Toronto, ON.
2013 **Actuarial Intern**, *Manulife Financial*, Toronto, ON.
2012 **Quantitative Analyst**, *Manulife Financial*, Toronto, ON.