John Pike

Department of Mathematics
Cornell University
Ithaca, NY 14850

Office: 580 Malott Hall
Email: `jpike@cornell.edu`
URL: www.math.cornell.edu/~jp999

Education

Ph.D. in Applied Mathematics, University of Southern California, 2013
Advisor: Jason Fulman

B.S. in Pure Mathematics, University of Texas at Austin, 2007

B.A. in Sociology, University of Texas at Austin, 2007

Employment

Visiting Assistant Professor, Cornell University, 2013 - 2016

Teaching Assistant, University of Southern California, 2008 - 2013

Teaching Experience

Cornell University

MATH 6710 (Probability Theory 1)   Fall 2013, Fall 2015

MATH 6720 (Probability Theory 2)   Spring 2014, Spring 2015, Spring 2016

MATH 4710 (Basic Probability)   Fall 2014

University of Southern California (Teaching Assistant)

MATH 117 (Introduction to Mathematics for Business and Economics)   Fall 2008

MATH 218 (Probability for Business)   Spring 2009

MATH 125 (Calculus I)   Fall 2009

MATH 226 (Calculus III)   Spring 2010

MATH 126 (Calculus II)   Fall 2010

MATH 118 (Fundamental Principles of the Calculus)   Spring 2011

MATH 225 (Linear Algebra and Linear Differential Equations)   Fall 2011

MATH 408 (Mathematical Statistics)   Spring 2012

MATH 425A (Fundamental Concepts of Analysis)   Fall 2012

MATH 407 (Probability Theory)   Spring 2013

Research Interests

My research is primarily concerned with probability theory and its applications. I am especially interested in Markov chains defined on combinatorial and algebraic structures and in distributional approximation using Stein's method techniques.

Publications and Preprints

D.C. Jerison, L. Levine, and J. Pike. Mixing time and eigenvalues of the abelian sandpile Markov chain. (2015), 42 pp. arXiv:1511.00666

A. Bendikov, A. Braverman, and J. Pike. Poisson statistics of eigenvalues in the hierarchical Dyson model. (2015), 25 pp. arXiv:1510.05312

J. Pike and H. Ren. Stein's method and the Laplace distribution. *ALEA Lat. Am. J. Probab. Math. Stat.* **11** (2014), no. 1, 571–587. arXiv:1210.5775

J. Pike. Eigenfunctions for Random Walks on Hyperplane Arrangements. Thesis (Ph.D.) - University of Southern California. *ProQuest LLC, Ann Arbor, MI,* (2013), 183 pp. MR3193075

J. Pike. A note on the Poincaré and Cheeger bounds for simple random walk on a connected graph (2012), 8 pp. arXiv:1210.5777

J. Pike. Convergence rates for generalized descents. *Electron. J. Combin.* **18** (2011), no. 1, Paper 236, 14 pp.

Awards and Grants

National Merit Scholarship, 2002 - 2007

Rapoport/King Scholarship (University of Texas), 2006 - 2007

Math Department Merit Scholarship (University of Southern California), 2008 - 2009

Theodore Edward Harris Graduate Research Prize (University of Southern California), 2012

NSF Grant DMS-1601016 (supporting Finger Lakes Probability Seminar), 2016 - 2017

Selected Talks

2013 *Probability Seminar*, University of Rochester

2013 *Discrete Geometry and Combinatorics Seminar*, Cornell University

2015 *New Directions in Stein's Method*, National University of Singapore

2016 *Probability Seminar*, Indiana University, Bloomington

2016 *Probability Seminar*, University of Illinois at Urbana-Champaign

2016 *Mathematical Colloquium*, University of Southern California

2016 *Penn-Temple Probability Seminar*, University of Pennsylvania

2016 *Stochastics Seminar*, Georgia Institute of Technology

Service

Co-organizer of Cornell Probability Seminar (2013 - 2016)

Mathematical Modeling Committee (2013 - 2016)

Conference Secretary for 10th Cornell Probability Summer School (2014)

Faculty Advisor for Cornell Math Explorers Club (2014 - 2016)

Team Advisor for Mathematical Contest in Modeling (2015, 2016)

Mathematics for Secondary Teachers speaker (2016)

Conference Organizer for Finger Lakes Probability Seminar (2016)

Referee for *Annals of Applied Probability*, *Bernoulli*, *Journal of Theoretical Probability*

Last updated: April 5, 2016