VLADISLAV KARGIN

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RESEARCH INTERESTS

Random matrix theory and free probability, including spectral properties, local laws, and operator-algebraic aspects of free convolution. Additional work in probabilistic combinatorics (trees, tilings) and topics at the probability–statistics interface.

EDUCATION

Ph.D., Mathematics, Courant Institute (NYU), 2008
Advisor: Gérard Ben Arous. Thesis: "Limit Theorems in Free Probability Theory"

Ph.D., Economics, Boston University, 2001
Advisor: Robert W. Rosenthal. Thesis: "Essays on Finance and Agency Theory"

M.A., Economics, New Economic School (Moscow), 1996

Diploma with Honors, Mathematics, Moscow State University, 1993

ACADEMIC APPOINTMENTS

2017–present Associate Professor, Binghamton University
2014–2017 Assistant Professor, Binghamton University
2011–2012 Lecturer (fixed-term), University of Cambridge
Fall 2010 Research Member, MSRI, Berkeley (on leave from Stanford)
2008–2011 Szegő Assistant Professor, Stanford University
2007–2008 Teaching Fellow, New York University

SELECTED PUBLICATIONS

42 peer-reviewed publications. Full list available via Google Scholar or department webpage.

V. Kargin and A. Onatski. *The smallest singular value of large random rectangular Toeplitz and circulant matrices*. Electron. J. Probab. **31** (2026), 1–30. [DOI]

S. R. Blackburn, Y. Chen, and V. Kargin. *An upper bound on the per-tile entropy of ribbon tilings*. Combin. Theory **5** (2025), 1–10. [DOI]

V. Kargin. *On the joint distribution of the area and the number of peaks for Bernoulli excursions*. Bernoulli **30** (2024), 2700–2720. [DOI]

V. Kargin. *Subordination of the resolvent for a sum of random matrices*. Ann. Probab. **43** (2015), 2119–2150. [arXiv]

V. Kargin. *On fluctuations of Riemann's zeta zeros*. Probab. Theory Related Fields **157** (2013), 575–604. [arXiv]

V. Kargin. *An inequality for the distance between densities of free convolutions*. Ann. Probab. **41** (2013), 3241–3260. [arXiv]

V. Kargin. *A concentration inequality and a local law for the sum of two random matrices*. Probab. Theory Related Fields **154** (2012), 677–702. [arXiv]

V. Kargin. *Products of random matrices: Dimension and growth in norm*. Ann. Appl. Probab. **20** (2010), 890–906. [arXiv]

V. Kargin. *Lyapunov exponents of free operators*. J. Funct. Anal. **255** (2008), 1874–1888. [arXiv]

V. Kargin. *On the Chernoff bound for efficiency of quantum hypothesis testing*. Ann. Statist. **33** (2005), 959–976.

SELECTED INVITED TALKS

- University of Cambridge, UK (Feb 2023, Nov 2011, Mar 2011)
- Stanford University (Oct 2014, May 2010, Oct 2008)
- Workshop on Random Product Matrices, Bielefeld, Germany (Aug 2016)
- Joint Seminar, U. of Pennsylvania and Temple U. (Feb 2020)

Additional talks at UC Berkeley, Oxford, Imperial College, Georgia Tech, Michigan, and others.

TEACHING

Graduate: Advanced Probability, Applied Probability & Stochastic Processes, Computational Linear Algebra, Random Matrices (Cambridge), Free Probability (Stanford)

Undergraduate: Probability Theory, Mathematical Statistics, Introduction to Statistical Learning, Actuarial Mathematics I & II, Advanced Linear Algebra, Multivariate Calculus, Stochastic Finance (Cambridge)

SERVICE

- Director of Undergraduate Studies (2025–present)
- Chair, Hiring Committee for Applied Mathematics (2024–25)
- Member: Graduate, Junior Personnel, Colloquium, and Actuarial Committees
- Reviewer for MathSciNet (179 reviews)
- Referee for Annals of Mathematics, Annals of Probability, PTRF, Bernoulli, and others

GRANTS AND FELLOWSHIPS

- Simons Foundation Collaboration Grant ($42,000), 2017–2022
- MSRI Postdoctoral Fellowship, Spring 2012

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