

## Vladislav Kargin's CV

### Current Mailing Address

4400 Vestal Pkwy E  
Vestal, NY 13850

### Contact Details

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### Status Info

US citizen  
Russia citizen

**Areas of Interest:** Probability theory, especially in connections with mathematical physics, combinatorics and algorithm theory.

### Education

|             |                                  |  |
|-------------|----------------------------------|--|
| 2004 – 2008 | PhD, Mathematics                 | Courant Institute of Mathematical Sciences, NYU  |
|             | Advisor:                         | Gerard Ben Arous   |
|             | Thesis:                          | “Limit Theorems in Free Probability Theory”  |
| 1996 – 2001 | PhD, Economics                   | Boston University  |
|             | Advisor:                         | Robert W. Rosenthal  |
|             | Thesis:                          | “Essays on Finance and Agency Theory”  |
| 1994 – 1996 | MA, Economics                    | New Economic School (Moscow)   |
| 1986 – 1993 | Diploma with Honors, Mathematics | Moscow State University (Russia)   |
| 1985        | Diploma                          | Kolmogorov’s High School # 18 for students gifted in mathematics and sciences (Moscow) |

### Employment/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)<br>(on leave from Stanford University) |

|             |                                       |  |
|-------------|---------------------------------------|--|
| 2008 – 2011 | Szego Assistant Professor             | Stanford University                                |
| 2007 – 2008 | Teaching Fellow                       | NYU  |
| 2001 – 2006 | Associate                             | Cornerstone Research (an economic consulting firm) |
| 1996 – 2001 | Teaching Fellow<br>Research Assistant | Boston University                                  |

## Publications in peer-reviewed journals

37. [On enumeration and entropy of ribbon tilings](#) (joint with Y. Chen)  
*Electronic Journal of Combinatorics*, v. 30(2), (2023), P2.15
36. [Cycles in random meander systems](#)  
*Journal of Statistical Physics*, v. 181, (2020), pp. 2322-2345
35. [A 3D Ginibre Point Field](#)  
*Journal of Statistical Physics*, v. 171, (2018), pp.1067-1095
34. [Variation of word frequencies in Russian literary texts](#)  
*Physica A: Statistical Mechanics and its Applications*, v. 445, (2016), pp.328 – 334.
33. [Limit theorems for linear eigenvalue statistics of overlapping matrices](#)  
*Electronic Journal of Probability*, v. 20, (2015), article 121, pp.1 – 30.
32. [On estimation in the reduced-rank regression with a large number of responses and predictors](#)  
*Journal of Multivariate Analysis*, v. 140, (2015), pp.377-394.
31. [Subordination of the resolvent for a sum of random matrices](#)  
*Annals of Probability*, v. 43, (2015), pp.2119-2150.
30. [On the largest Lyapunov exponent for products of Gaussian matrices](#)  
*Journal of Statistical Physics*, v.157 (2014) pp.70-83
29. [Statistical properties of zeta functions' zeros](#)  
*Probability Surveys*, v.11 (2014) pp.121-160
28. [On Pfaffian random point fields](#)  
*Journal of Statistical Physics*, v.154 (2014) pp.681-704
27. [On fluctuations of Riemann's zeta zeros](#)  
*Probability Theory and Related Fields*, v.157 (2013) pp.575-604

26. [An inequality for the distance between densities of free convolutions](#) *Annals of Probability*, v.41 (2013) pp.3241-3260
25. [A concentration inequality and a local law for the sum of two random matrices](#) *Probability Theory and Related Fields*, v.154 (2012) pp.677-702
24. [On eigenvalues of the sum of two random projections](#) *Journal of Statistical Physics*, v.149 (2012) pp.246-258
23. [On free stochastic differential equations](#) *Journal of Theoretical Probability*, v.24 (2011) pp.821-848
22. [Relaxation time is monotone in temperature in the mean-field Ising model](#) *Statistics and Probability Letters*, v.81 (2011) pp.1094-1097
21. [Bounds for mixing time of quantum walks on finite graphs](#) *Journal of Physics A: Math. and Theor.* v.43 (2010) 335302
20. [Continuous-time quantum walk on integer lattices and homogeneous trees](#) *Journal of Statistical Physics* v.140 (2010) pp.393-408
19. [Products of random matrices: Dimension and growth in norm](#) *Annals of Applied Probability* v.20 (2010) pp.890-906
18. [Free point processes and free extreme values](#) (Joint with G. Ben Arous) *Probability Theory and Related Fields* v.147 (2010) pp.161-183
17. [Spectrum of random Toeplitz matrices with band structure](#) *Electronic Communications in Probability* v.14 (2009) pp.412-423
16. [Lyapunov exponents of free operators](#) *Journal of Functional Analysis*, v.255 (2008) pp.1874-1888
15. [Curve forecasting by functional autoregression](#) (Joint with A. Onatski) *Journal of Multivariate Analysis* v.99, (2008) pp.2508-2526
14. [Coordination Games with Quantum Correlations](#) *International Journal of Game Theory*, 2008, 37, 211-218
13. [On the asymptotic growth of the support of free multiplicative convolutions](#) *Electronic Communications in Probability*, v.13 (2008) pp.415-421
12. [A limit theorem for products of free unitary operators](#) *Probability Theory and Related Fields*, v.141 (2008) pp.603-623
11. [On superconvergence of convolutions of free random variables](#) *Annals of Probability* , v.35 (2007) pp. 1931-1949
10. [A large deviation inequality for vector functions on finite reversible Markov chains](#) *Annals of Applied Probability*, v.17 (2007) pp.1202-1221
9. [The norm of products of free random variables](#) *Probability Theory and Related Fields*, v.139 (2007) pp. 397-413

8. [Berry-Esseen for free random variables](#)  
*Journal of Theoretical Probability*, v.20 (2007) pp.381-395
7. [A proof of a non-commutative central limit theorem by the Lindeberg method](#)  
*Electronic Communications in Probability*, v.12 (2007) pp.36-50
6. [On the Chernoff bound for efficiency of quantum hypothesis testing](#) *Annals of Statistics*, v. 33 (2005) pp.959-976
5. [Lattice Option Pricing by Multidimensional Interpolation](#)  
*Mathematical Finance*, 2005, 15, 635-647
4. [Uncertainty of the Shapley Value](#)  
*International Game Theory Review*, 2005, 7(4), 517-529
3. [Optimal Asset Allocation with Asymptotic Criteria](#)  
*IJTAF*, 2003, 6(6), 593-604
2. [Prevention of Herding by Experts](#)  
*Economics Letters*, 2003, 78(3), 401-407
1. [Value Investing in Emerging Markets: Risks and Benefits](#)  
*Emerging Markets Review*, 2002, 3(3), 233-244

## Conference/Seminar Presentations

|               |   |
|---------------|---|
| June 2021     | European Congress of Mathematicians, Portoroz, Slovenia                                 |
| February 2020 | Joint Seminar of U. of Pennsylvania and Temple U., Philadelphia, PA                     |
| August 2018   | International Congress of Mathematicians, Rio de Janeiro, Brasil                        |
| July 2018     | International Conference on Probability and Mathematical Statistics, Vilnius, Lithuania |
| July 2018     | The 18th Workshop in Non-commutative probability, Bedlewo, Poland                       |
| March 2018    | AMS Sectional Meeting, Columbus OH  |
| April 2017    | U. of Syracuse, Syracuse NY   |
| August 2016   | “Workshop on Random Product Matrices,” Bielefeld, Germany                               |
| October 2014  | Stanford, Palo Alto CA  |
| March 2014    | SUNY, Binghamton NY   |
| March 2014    | UC Davis, Davis CA  |
| April 2013    | Bristol University, Bristol, UK   |
| Jan 2013      | Ohio State U., Columbus, OH   |
| Jan 2013      | Carnegie Mellon U., Pittsburg, PA   |
| June 2012     | University of Warwick, Coventry, UK   |
| May 2012      | Mathematical Sciences Research Institute, Berkeley CA                                   |
| Nov 2011      | University of Cambridge, Cambridge UK   |
| May 2011      | London School of Economics, London UK   |
| April 2011    | U. of Oxford, Oxford UK   |
| Mar 2011      | U. of Cambridge, Cambridge UK   |
| Mar 2011      | Imperial College, London UK   |
| Feb 2011      | IUPUI, Indianapolis IN  |
| Feb 2011      | U. of Delaware, Newark DE   |
| Feb 2011      | Georgia Tech, Atlanta GA  |
| Jan 2011      | U. of Pittsburg, Pittsburg PA   |
| Jan 2011      | U. of Michigan, Ann Arbor MI  |
| Nov 2010      | MSRI, Berkeley CA   |

|          |  |
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| Oct 2010 | UC Davis, Davis CA   |
| May 2010 | Stanford U., Stanford CA   |
| Dec 2009 | UC Berkeley, Berkeley CA   |
| Mar 2009 | Workshop on Stochastic Processes, Stanford CA                            |
| Oct 2008 | Stanford U., Stanford CA   |
| Oct 2008 | UC Davis, Davis CA   |
| Feb 2008 | John Hopkins U., Baltimore MD  |
| Jan 2008 | UC Davis, Davis CA   |
| Jan 2008 | McGill U., Montreal, Quebec  |
| Jan 2008 | Workshop on Free Probability and its Applications, Banff, Alberta        |
| Oct 2007 | Probability Seminar at CIMS, New York NY                                 |
| Mar 2007 | Graduate Student / Postdoc Seminar at CIMS, New York NY                  |
| Nov 2006 | Free Probability Seminar at TAMU, College Station TX                     |
| Jul 2006 | Workshop on Stochastic Eigen-Analysis and Its Applications, Boston, MA   |
| Jan 2006 | North American Winter Meeting of the Econometric Society, Boston MA      |
| Aug 2005 | Joint Statistical Meetings, Minneapolis MN                               |
| Jul 2005 | SIAM Meeting, New Orleans LA   |
| Aug 2004 | Institute of Mathematical Statistics/Bernoulli Society, Barcelona, Spain |
| Jul 2004 | International Conference on Game Theory, Stony Brook NY                  |
| Jun 2004 | North American Summer Meeting of the Econometric Society, Providence, RI |
| May 2004 | Second Erich L. Lehmann Symposium, Houston TX                            |
| Jan 2004 | National Meeting of American Mathematical Society, Phoenix AZ            |
| Jun 2003 | North American Summer Meeting of the Econometric Society, Evanston IL    |
| Jun 2001 | North American Summer Meeting of the Econometric Society, Washington DC  |
| Jul 1997 | International Conference on Game Theory, Stony Brook NY                  |

## Refereeing/Reviewing

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Reviewing for approximately 90 reviews  
MathSciNet

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Refereeing for Journals: Annals of Mathematics,  
Annals of Probability,  
Bernoulli,  
Electronic Communications in Probability,  
Electronic Journal of Probability,  
Journal of Physics A,  
Journal of Futures Markets,  
Journal of Mathematical Analysis and Applications,  
Journal of Theoretical Probability,  
Probability Theory and Related Fields,  
Proceedings of the Royal Society A,  
Statistics and Probability Letters

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## Teaching

### *Binghamton University*

|   |  |
|---|--|
| Advanced Probability (graduate)                         | F2016, F2019                                   |
| Applied Probability and Stochastic Processes (graduate) | F2018  |
| Linear Algebra for Statisticians (graduate)             | F2020, F2021                                   |
| Actuarial Mathematics I                                 | F2016, F2017                                   |
| Actuarial Mathematics II                                | S2017  |
| Introduction to Probability                             | F2015, S2016,<br>F2018, S2018,<br>F2020, S2021 |
| Introduction to Statistical Learning                    | F2021  |
| Introduction to Statistics                              | F2019, S2019,<br>S2020                         |
| Multivariate Calculus                                   | F2015, F2017                                   |

### *University of Cambridge*

|                            |       |
|----------------------------|-------|
| Random Matrices (graduate) | F2011 |
| Stochastic Finance Models  | F2011 |

### *Stanford University*

|   |                               |
|---|-------------------------------|
| Discrete Probabilistic Methods (graduate) | W2011                         |
| Free Probability (graduate)               | S2009                         |
| Elementary Functional Analysis            | S2010                         |
| Introduction to Probability Theory        | W2010, W2011                  |
| Linear Algebra and Multivariate Calculus  | F2008, W2009,<br>S2009, F2009 |
| Ordinary Differential Equations           | S2011                         |

### *New York University*

|  |            |
|--|------------|
| Probability and Statistics                           | S2008      |
| Calculus III (Functions of Several Variables)        | F2007      |
| Calculus II (Integration, Analytic Geometry, Series) | Summer2007 |
| Calculus I (Derivatives, Integrals, Transcendentals) | Summer2008 |

## Graduate Advising

Yinsong Chen (Ph.D. 2020)

## **Administrative Service**

|   |   |
|---|---|
| Member of Graduate committee  | 2019 – present  |
| Member of Statistics committee  | 2018 – present  |
| Ph. D. Qualifying Exam committee  | 2019 (Yinsong Chen – chair), 2020 (Kexuan Li, Wei Yang)         |
| Ph. D. Thesis committee   | 2018 (P. Milano), 2020 (Yinsong Chen – chair), 2021 (Kexuan Li) |
| Member of Junior Personnel committee                                    | 2017 – present  |
| Member of Undergraduate Advising committee                              | 2016 – 2019   |
| Member of the Hiring committee (Probability)                            | 2015/16   |
| Member of Colloquium committee  | 2015 – present<br>(2016/2017 – chair)                           |
| Member of Actuarial committee   | 2015 – present  |
| Member of the admission committee for the Financial Mathematics Program | 2008/09, 2009/10  |
| Organizer of the Stanford probability seminar                           | 2009/10   |

## **Other Professional Activities**

Organized a section at AMS regional meeting at Binghamton U., Fall 2019.

## **Fellowships & Awards**

|   |                  |
|---|------------------|
| Collaboration Grant by Simons Foundation (\$42,000)                                 | 2017 – 2022      |
| Postdoctoral Fellowship by MSRI, Berkeley   | Spring 2012      |
| Postdoctoral Fellowship by MSRI, Berkeley (declined due to a conflict of interests) | Fall 2010        |
| Stipend by the Mathematics Department of NYU  | 2006/07, 2007/08 |

Research Assistantship  
by the Economics Department of Boston U.

1998/99, 1999/2000,  
2000/01

Teaching Fellowship  
by the Economics Department of Boston U.

1996/97