Curriculum Vitae of Vadim Gorin

Web page: www.mccme.ru/~vadicgor/ E-mail: vadicgor@gmail.com
Born in 1986 in Moscow.

Education:

- Graduated from school 57 (Moscow) in 2003.
- 2003-2008, Moscow State University. B.S., M.S. in Mathematics.
- 2008-2011, Moscow State University; Independent University of Moscow; Utrecht University.
  Candidate of sciences and *PhD* in mathematics (2011).
  Advisors: Grigori Olshanski, Boris Gurevich, Erik P. van den Ban, and Alexander Gnedin

Employment:

- Assistant Professor at Massachusetts Institute of Technology (since 01/2015)
- CLE Moore Instructor at Massachusetts Institute of Technology. (2012–2014)
- Postdoctoral Fellow at MSRI, University of California Berkeley. (01/2012–05/2012)
- Researcher, Institute for Information Transmission Problems of Russian Academy of Sciences. (since 2011)
- Junior Researcher, The Hydrological and Meteorological Research Centre (2007–2012)

Awards, scholarships and grants:

- Young Scientist Prize of International Union of Pure and Applied Physics (2018)
- NEC Corporation Fund for Research in Computers and Communications (2017-2019)
- NSF Grant DMS-1664619: Focused Research Group "Integrable Probability", joint with J. Baik, A. Borodin, I. Corwin, and L. Petrov (2017-2020)
- Sloan Research Fellowship (2016)
- Prize of Moscow Mathematical Society (2014)
- NSF Grant DMS-1407562 (2014-2017)
- RFBR-CNRS grants 10-01-93114 (2010 - 2012) and 11-01-93105 (2011-2013)
- Scholarship of "Dynasty" foundation for young mathematicians (2011)
- Grant "Development of the scientific potential of the higher school" (2010 - 2011)
- RFBR grant 07-01-91209 (2007-2009)
- Awards and scholarships in graduate/undergraduate years: IUM-Simons foundation scholarship (2011), Scholarship of the government of Russia (2010), scholarship of Independent University of Moscow (2009), A.N. Kolmogorov scholarship (2007-2008), silver prize of The Twelfth Moebius Contest (2008), winner of The Eleventh Moebius Contest (2007), silver prize of The Leonhard Eulers Foundation Contest (2007),

Editorial:

- Section editor, Annales Henri Poincaré (2017-)
- Associate editor, Annals of Probability (2018-)

Research articles:
Published papers (in chronological order):

1. Non-intersecting paths and Hahn orthogonal polynomial ensemble, *Functional Analysis and its Applications*, 42 (2008), no. 3, 180–197. arXiv: 0708.2349
2. Noncolliding Jacobi processes as limits of Markov chains on the Gelfand- Tsetlin graph. *Journal of Mathematica Sciences* (New York) 158 (2009), no. 6, 819–837 (translated from *Zapiski Nauchnykh Seminarov POMI*, Vol. 360 (2008), pp. 91–123). arXiv: 0812.3146
3. Shuffling algorithm for boxed plane partitions (joint paper with A.Borodin). *Advances in Mathematics*, 220 (2009), no. 6, 1739–1770. arXiv: 0804.3071
4. Disjointness of representations arising in harmonic analysis on the infinite-dimensional unitary group, *Functional Analysis and its Applications*, 44 (2010), no. 2, 14–32. arXiv: 0805.2660
5. q-Distributions on boxed plane partitions (joint paper with A. Borodin and E. Rains). *Selecta Mathematica, New Series*, 16 (2010), no. 4, 731–789, arXiv:0905.0679
6. The q-Gelfand-Tsetlin graph, Gibbs measures and q-Toeplitz matrices, *Advances in Mathematics*, 229 (2012), no. 1, 201–266, arXiv:1011.1769
7. A pattern theorem for random sorting networks (joint paper with O. Angel and A. Holroyd), *Electronic Journal of Probability*, 17 (2012), no. 99, 1–16. arXiv:1110.0160
8. Markov processes of infinitely many nonintersecting random walks (joint paper with A. Borodin), *Probability Theory and Related Fields*, 155 (2013), no. 3–4, 935–997. arXiv:1106.1299
9. Block characters of the symmetric groups (joint paper with A. Gnedin and S. Kerov), *Journal of Algebraic Combinatorics*, 38 (2013), no. 1, 79–101. arXiv:1108.5044
10. Record-dependent measures on the symmetric groups (joint paper with A. Gnedin), *Random Structures and Algorithms*, 46, no. 4 (2015), 688–706. arXiv:1202.3680
11. Limits of Multilevel TASEP and similar processes (joint paper with M. Shkolnikov), *Annales de l'Institut Henri Poincare, Probabilites et Statistiques*, 51, no. 1 (2015), 18–27. arXiv:1206.3817
12. Finite traces and representations of the group of infinite matrices over a finite field (joint paper with S. Kerov, A. Vershik), *Advances in Mathematics*, 254 (2014), 331–395. arXiv:1209.4945.
13. Lectures on integrable probability (joint paper with A. Borodin). In: Probability and Statistical Physics in St. Petersburg, Proceedings of Symposia in Pure Mathematics, Vol. 91, 155–214. AMS 2016. arXiv:1212.3351
14. Asymptotics of symmetric polynomials with applications to statistical mechanics and representation theory (joint paper with G. Panova), *Annals of Probability*, 43, no. 6, (2015) 3052–3132. arXiv:1301.0634.
15. General beta Jacobi corners process and the Gaussian Free Field (joint paper with A. Borodin), *Communications on Pure and Applied Mathematics*, 68, no. 10 (2015), 1774–1844. arXiv:1305.3627.
16. Observables of Macdonald processes (joint paper with A. Borodin, I. Corwin and S. Shakirov), *Transactions of American Mathematical Society.* 368 (2016), 1517–1558. arxiv:1306.0659.
17. From Alternating Sign Matrices to the Gaussian Unitary Ensemble, *Communications in Mathematical Physics*, 332, no. 1 (2014), 437–447, arXiv:1306.6347.
18. Representations of classical Lie groups and quantized free convolution (joint paper with A. Bufetov), *Geometric and Functional Analysis (GAFA)*, 25, no. 3 (2015), 763–814, arXiv:1311.5780
19. Multilevel Dyson Brownian motions via Jack polynomials (joint paper with M. Shkolnikov), *Probability Theory and Related Fields*, 163, no. 3 (2015), 413-463. arXiv:1401.5595
20. Stochastic six–vertex model (joint paper with A. Borodin, I. Corwin), *Duke Mathematical Journal*, 165, no. 3 (2016), 563-624. arXiv:1407.6729
21. Interacting particle systems at the edge of multilevel Dyson Brownian motions (joint paper with M. Shkolnikov), *Advances in Mathematics*, 304 (2017), 90–130, arXiv:1409.2016
22. Stochastic monotonicity in Young graph and Thoma theorem (joint paper with A. Bufetov), *International Mathematics Research Notices* 2015 (23): 12920-12940. (2015). arXiv:1411.3307

23. Determinantal measures related to big q-Jacobi polynomials (joint paper with G. Olshanski), *Functional Analysis and Its Applications*, 49, no. 3 (2015), 214-217.
24. A quantization of the harmonic analysis on the infinite-dimensional unitary group (joint paper with G. Olshanski), *Journal of Functional Analysis*, 270, 375-418 (2016). arXiv:1504.06832
25. Gaussian asymptotics of discrete β–ensembles (joint paper with A. Borodin and A. Guionnet), *Publications mathématiques de l'IHÉS* 125, no. 1 (2017), 1-78. arXiv:1505.03760
26. Stochastic Airy semigroup through tridiagonal matrices (joint paper with M. Shkolnikov), *Annals of Probability*, 46, no. 4 (2018), 2287–2344. arXiv:1601.06800
27. Bulk universality for random lozenge tilings near straight boundaries and for tensor products, *Communications in Mathematical Physics* 354, no. 1 (2017), 317344. arXiv:1603.02707
28. Fluctuations of particle systems determined by Schur generating functions (joint paper with A. Bufetov), *Advances in Mathematics* 338, no. 7 (2018), 702–781. arXiv:1604.01110
29. Moments match between the KPZ equation and the Airy point process (joint paper with A. Borodin), *SIGMA* 12 (Special issue in honor of P. Deift and C. Tracy; 2016), 102. arXiv:1608.01557
30. Universality of local statistics for noncolliding random walks (joint paper with L. Petrov), to appear in *Annals of Probability.* arXiv:1608.03243
31. Spherically Symmetric Random Permutations (joint paper with A. Gnedin), to appear in *Random Structures and Algorithms.* arXiv:1611.01860
32. Interlacing adjacent levels of β-Jacobi corners processes (joint paper with L. Zhang), *Probability Theory and Related Fields*, 172, no. 34 (2018), 915–981. arXiv:1612.02321
33. Random sorting networks: local statistics via random matrix laws (joint paper with M. Rahman), to appear in *Probability Theory and Related Fields.* arXiv:1702.07895
34. Crystallization of random matrix orbits (joint paper with A. Marcus), to appear in *International Mathematics Research Notices.* arXiv:1706.07393
35. The KPZ equation and moments of random matrices (joint paper with A. Sodin), to appear in *Journal of Mathematical Physics, Analysis, Geometry* (Special issue in honor of V.A. Marchenko). arXiv:1801.02574
36. Product matrix processes as limits of random plane partitions (joint paper with A. Borodin, E. Strahov), to appear in *International Mathematics Research Notices.* arXiv:1806.10855
37. Fourier transform on high–dimensional unitary groups with applications to random tilings (joint paper with A. Bufetov), to appear in *Duke Mathematical Journal.* arXiv:1712.09925
38. A stochastic telegraph equation from the six-vertex model (joint paper with A. Borodin), to appear in *Annals of Probability.* arXiv:1803.09137

Mathematical preprints:

39. q-deformed Character Theory for Infinite-Dimensional Symplectic and Orthogonal Groups (joint paper with C. Cuenca). arXiv:1812.06523
40. Gaussian fluctuations for products of random matrices (joint paper with Y. Sun). arXiv:1812.06532

Other publications:

41. Estimation of multivariate observation-error statistics for AMSU-A data (joint paper with M. Tsyrulnikov), *Monthly Weather Review*, 139 (2011) no. 12, 3765–3780.
42. What can be made out of cubes? (in Russian), *Quantum*, 2012, no. 3, http://kvant.mccme.ru/2012/03/.
43. Are atmospheric-model tendency errors perceivable from routine observations? (joint paper with M. Tsyrulnikov), *COSMO Newsletter*, no. 13: April 2013, 3–18, www.cosmo-model.org.

Teaching:

- Instructor for 18.01, 18.02 (Calculus), 18.100 (Real Analysis), 18.175 (Theory of Probability), 18.177 (Topics in Stochastic Processes: Integrable probability) at MIT (2012-2018)
- Graduate level mini-courses on various aspects of Integrable Probability at: Institute Henri Poincare (Paris, 2017), Courant Institute (New York, 2017), Northwestern Probability Summer School (Evanston, 2018), Cornell Probability Summer School (Ithaca, 2019)

Student supervision:

- Undergraduate Research Projects at MIT: Juan Ortiz Rhoton, Zachary Izzo, Lingfu Zhang, Panagiotis Lolas, Yunkun Zhou, Shreyas Balaji, Brin Harper, Elizabeth Han
- Graduate students at MIT: Andrew Ahn
- PRIMES projects at MIT: Arthur Kozlovski (Mentor – A. Knizel), Gopal Goel (Prize of Intel ISEF; Mentor – A. Ahn)
- PhD Thesis committee: Alexander Moll (Chair — A. Borodin), Florent Bekerman (Chair — A. Guionnet), Ewain Gwynne (Chair — S. Sheffield), Evgeni Dimitrov (Chair — A. Borodin)

Organization:

- Member of organizing committee of various mathematical olympiads. In 2011 team leader of the organizing committee of Moscow Mathematical Olympiad for 8th grade.
- (Co-)Organizer of MIT probability seminar (2012-2018)
- (Co-)Organizer of MIT integrable probability working group (2014-2018)
- (Co-)Organizer of Charles River Lectures on Probability and Related Topics (2014– 2018)
- (Co-)Organizer of KITP conference "Non-equilibrium dynamics of stochastic and quantum integrable systems" (2016)
- Organizer of the invited session "Integrable probability" of the conference SPA-2017.
- Member of Institute of Mathematical Statistics Committee on New Researchers - 2016
- Member of Scientific committee for the conference FPSAC-2017
- (Co-)Organizer of the program "Non-equilibrium Systems and Special Functions" in MATRIX Institute (2018)
- (Co-)Organizer of the invited session "The Gaussian Free Field and random geometry" at AMS Sectional meeting (2018)
- (Co-)Organizer of the workshop Integrable Probability - Boston (2018)
- (Co-)Organizer of the workshop "Gaussian Fields in Random matrix theory" in the Institute Mittag–Leffler, Sweden (2018)

Modified: March 2019.