

# Leonid Petrov. Curriculum Vitae

For a brief version see <https://lpetrov.cc/research/petrovCVbrief.pdf>

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## Research areas

Probability, Mathematical Physics, Algebraic Combinatorics, Representation Theory.

## Education

- 2007–2010: Ph.D. studies,  
Institute for Information Transmission Problems (Moscow, Russia).  
Advisor: Grigori Olshanski.  
Thesis “Markov Chains on Partitions and Infinite–Dimensional Diffusion Processes”.
- 2002–2007: Diploma with excellence,  
Lomonosov Moscow State University (Russia),  
Department of Mathematics and Mechanics, Chair of Probability.
- 1997–2002: Moscow High School No. 2.

## Appointments

- Fall 2021: Research Professor  
MSRI Program “Universality and Integrability in Random Matrix Theory and Interacting Particle Systems”
- Since 2019: Associate Professor  
at Department of Mathematics, University of Virginia, Charlottesville, VA, USA.
- 2014–2019: Assistant Professor  
at Department of Mathematics, University of Virginia, Charlottesville, VA, USA.
- 2017–2018: Visiting Assistant Professor  
at Department of Mathematics, MIT, Cambridge, MA, USA.
- 2011–2014: Research Instructor  
at Department of Mathematics, Northeastern University, Boston, MA, USA.

2009–2011: Research associate  
at Dobrushin Mathematics Laboratory, Institute for Information Transmission Problems, Moscow, Russia (on leave since 2011).

## Scholarships/prizes/funding

2020–2025: Simons Collaboration Grant for Mathematicians 709055 “Distributional symmetries in stochastic systems”, \$42,000.

2019: The 2020 Bernoulli prize for an outstanding survey article in probability (jointly with Alexei Borodin for the paper *Integrable probability: From representation theory to Macdonald processes*)

2018–2019: NSF DMS conference grant 1839534 “Workshop on Representation Theory, Combinatorics, and Geometry”, amount \$15,000 (PI with co-PIs Jennifer Morse and Weiqiang Wang).

2017: Simons Foundation Collaboration Grant for Mathematicians. Recommended for funding but not awarded due to the receipt of the NSF DMS grant 1664617 (as per the rules of Collaboration Grants).

2017–2021: NSF DMS grant 1664617 “FRG: Collaborative Research: Integrable Probability”. Joint with PIs Jinho Baik (University of Michigan), Alexei Borodin, Vadim Gorin (MIT), and Ivan Corwin (Columbia University). Amount: \$193,453 (UVA part).

2016–2017: NSF DMS conference grant 1663552 “2017 Seminar on Stochastic Processes”, amount \$46,020.00 (co-PI with PI Tai Melcher and another co-PI Christian Gromoll).

2015: Prize of the Moscow Mathematical Society.

2014–2015: EDF Fellowship of the University of Virginia.

2014: AMS/NSF Travel Grant Award for ICM 2014.

2011–2013: RFBR–CNRS grant 11-01-93105 “Representation theory and noncommutative geometry”.

2010–2012: RFBR–CNRS grant 10-01-93114 “New models of Markov processes on point configurations. Applications to stochastic queueing networks”.

2010: Dynasty foundation fellowship for young scientists.

2010: Silver prize of The Fourteenth Möbius Contest.

2009: Alexander Kuznetsov/Independent University of Moscow graduate student scholarship.

2005, 2006: V. Potatin federal scholarship for academic excellence, leadership and creativity.

## Publications

*Preprints (\*), accepted, or published*

- [39] (\*) Matthew Nicoletti, Leonid Petrov. *Irreversible Markov Dynamics and Hydrodynamics for KPZ States in the Stochastic Six Vertex Model*, arXiv:2201.12497 [math.PR].
- [38] (\*) Amol Aggarwal, Alexei Borodin, Leonid Petrov, Michael Wheeler. *Free Fermion Six Vertex Model: Symmetric Functions and Random Domino Tilings*, arXiv:2109.06718 [math.PR].
- [37] Leonid Petrov. *Refined Cauchy identity for spin Hall-Littlewood symmetric rational functions*, Journal of Combinatorial Theory Ser. A, vol. 184 (2021), 105519. arXiv:2007.10886 [math.CO].
- [36] Matteo Mucciconi, Leonid Petrov. *Spin  $q$ -Whittaker polynomials and deformed quantum Toda*, Communications in Mathematical Physics, to appear. arXiv:2003.14260 [math.PR].
- [35] Leonid Petrov, Mikhail Tikhonov. *Parameter symmetry in perturbed GUE corners process and reflected drifted Brownian motions*, Journal of Statistical Physics, 181 (2020), 1996–2010.. arXiv:1912.08671 [math.PR].
- [34] Leonid Petrov. *Parameter permutation symmetry in particle systems and random polymers*, SIGMA 17 (2021), 021, 34 pages. arXiv:1912.06067 [math.PR].
- [33] Leonid Petrov. *PushTASEP in inhomogeneous space*, Electronic Journal of Probability, vol. 25 (2020), paper no. 114.. arXiv:1910.08994 [math.PR].
- [32] Leonid Petrov, Axel Saenz. *Mapping TASEP back in time*, Probability Theory and Related Fields, online first (2021).. arXiv:1907.09155 [math.PR].
- [31] Alexey Bufetov, Matteo Mucciconi, Leonid Petrov. *Yang-Baxter random fields and stochastic vertex models*, Advances in Mathematics 388 (2021), 107865. arXiv:1905.06815 [math.PR].
- [30] Ivan Corwin, Konstantin Matveev, Leonid Petrov. *The  $q$ -Hahn PushTASEP*, International Mathematics Research Notices (2019), rnz106. arXiv:1811.06475 [math.PR].
- [29] Alisa Knizel, Leonid Petrov, Axel Saenz. *Generalizations of TASEP in discrete and continuous inhomogeneous space*, Communications in Mathematical Physics 372 (2019), no. 3, pp 797–864.. arXiv:1808.09855 [math.PR].
- [28] Christian Gromoll, Mark Meckes, Leonid Petrov. *Quenched Central Limit Theorem in a Corner Growth Setting*, Electronic Communications in Probability (2018), Vol. 23, paper no. 101, 1-12. arXiv:1804.04222 [math.PR].
- [27] Alexey Bufetov, Leonid Petrov. *Yang-Baxter field for spin Hall-Littlewood symmetric functions*, Forum of Mathematics Sigma 7 (2019), e39.. arXiv:1712.04584 [math.PR].

- [26] Michael Damron, Leonid Petrov, David Sivakoff. *Coarsening model on  $\mathbb{Z}^d$  with biased zero-energy flips and an exponential large deviation bound for ASEP*, Communications in Mathematical Physics 362 (2018), no. 1, 185–217. arXiv:1708.05806 [math.PR].
- [25] Sevak Mkrtchyan, Leonid Petrov. *GUE corners limit of  $q$ -distributed lozenge tilings*, Electronic Journal of Probability, Volume 22 (2017), paper no. 101, 24 pp.. arXiv:1703.07503 [math.PR].
- [24] Alexei Borodin, Leonid Petrov. *Inhomogeneous exponential jump model*, Probability Theory and Related Fields 172 (2018), 323–385. arXiv:1703.03857 [math.PR].
- [23] Daniel Orr, Leonid Petrov. *Stochastic higher spin six vertex model and  $q$ -TASEPs*, Advances in Mathematics 317 (2017), 473–525. arXiv:1610.10080 [math.PR].
- [22] Vadim Gorin, Leonid Petrov. *Universality of local statistics for noncolliding random walks*, Annals of Probability (2019), Vol. 47, No. 5, 2686–2753.. arXiv:1608.03243 [math.PR].
- [21] Alexei Borodin, Leonid Petrov. *Lectures on Integrable probability: Stochastic vertex models and symmetric functions*, Lecture Notes of the Les Houches Summer School, Volume 104, July 2015. arXiv:1605.01349 [math.PR].
- [20] Alexei Borodin, Leonid Petrov. *Higher spin six vertex model and symmetric rational functions*, Selecta Mathematica 24 (2018), no. 2, 751–874. arXiv:1601.05770 [math.PR].
- [19] Konstantin Matveev, Leonid Petrov.  *$q$ -randomized Robinson-Schensted-Knuth correspondences and random polymers*, Annales de l’Institut Henri Poincaré D: Combinatorics, Physics and their Interactions 4 (2017), no. 1, 1–123. arXiv:1504.00666 [math.PR].
- [18] Ivan Corwin, Leonid Petrov. *Stochastic higher spin vertex models on the line*, Communications in Mathematical Physics 343 (2016), no. 2, 651–700. arXiv:1502.07374 [math.PR].
- [17] Alexei Borodin, Ivan Corwin, Leonid Petrov, Tomohiro Sasamoto. *Spectral theory for interacting particle systems solvable by coordinate Bethe ansatz*, Communications in Mathematical Physics 339 (2015), no. 3, 1167–1245. arXiv:1407.8534 [math-ph].
- [16] Alexey Bufetov, Leonid Petrov. *Law of Large Numbers for Infinite Random Matrices over a Finite Field*, Selecta Mathematica 21 (2015), no. 4, 1271–1338. arXiv:1402.1772 [math.PR].
- [15] Alexei Borodin, Leonid Petrov. *Integrable probability: From representation theory to Macdonald processes*, Probability Surveys, 11 (2014), 1–58. arXiv:1310.8007 [math-ph].
- [14] Alexei Borodin, Ivan Corwin, Leonid Petrov, Tomohiro Sasamoto. *Spectral theory for the  $q$ -Boson particle system*, Compositio Mathematica, 151 (2015), no. 1, 1–67. arXiv:1308.3475 [math-ph].
- [13] Ivan Corwin, Leonid Petrov. *The  $q$ -PushASEP: A New Integrable Model for Traffic in  $1+1$  Dimension*, Journal of Statistical Physics, 160 (2015), no. 4, 1005–1026. arXiv:1308.3124 [math.PR].

- [12] Alexei Borodin, Leonid Petrov. *Nearest neighbor Markov dynamics on Macdonald processes*, Advances in Mathematics, 300 (2016), 71-155. arXiv:1305.5501 [math.PR].
- [11] Leonid Petrov. *The Boundary of the Gelfand-Tsetlin Graph: New Proof of Borodin-Olshanski's Formula, and its  $q$ -analogue*, Moscow Mathematical Journal, 14 (2014) no. 1, 121-160. arXiv:1208.3443 [math.CO].
- [10] Leonid Petrov. *Asymptotics of uniformly random lozenge tilings of polygons. Gaussian free field*, Annals of Probability, 43 (2014), no. 1, 1-43. arXiv:1206.5123 [math.PR].
- [9] Leonid Petrov. *Asymptotics of Random Lozenge Tilings via Gelfand-Tsetlin Schemes*, Probability Theory and Related Fields, 160 (2014), no. 3, 429-487. arXiv:1202.3901 [math.PR].
- [8] Leonid Petrov.  *$sl(2)$  Operators and Markov Processes on Branching Graphs*, Journal of Algebraic Combinatorics 38 (2013), no. 3, 663-720. arXiv:1111.3399 [math.CO].
- [7] Leonid Petrov. *On Measures on Partitions Arising in Harmonic Analysis for Linear and Projective Characters of the Infinite Symmetric Group*, Proceedings of the international conference "50 years of IITP". arXiv:1107.0676 [math.CO].
- [6] Leonid Petrov. *Pfaffian Stochastic Dynamics of Strict Partitions*, Electronic Journal of Probability 16 (2011), 2246-2295. arXiv:1011.3329 [math.PR].
- [5] Leonid Petrov. *Random Strict Partitions and Determinantal Point Processes*, Electronic Communications in Probability 15 (2010), 162-175. arXiv:1002.2714 [math.PR].
- [4] Leonid Petrov. *Random Walks on Strict Partitions*, Journal of Mathematical Sciences 168 (2010), no. 3, 437-463. arXiv:0904.1823 [math.PR].
- [3] Leonid Petrov. *Limit Behavior of Certain Random Walks on Strict Partitions*, Russian Mathematical Surveys 64 (2009), no. 6, 1139-1141.
- [2] Leonid Petrov. *A Two-parameter Family of Infinite-dimensional Diffusions in the Kingman Simplex*, Functional Analysis and Its Applications 43 (2009), no. 4, 279-296. arXiv:0708.1930 [math.PR].
- [1] Leonid Petrov. *Asymptotic Behavior of a Certain Collection of Particles on a Line Under Synchronization*, Proceedings of the XXVIII Conference of Young Scientists of Department of Mechanics and Mathematics of the Lomonosov Moscow State University (2006), 152-156, in Russian.

### Other works

- [1] Sihan Li, Andrew Mecca, Jeewoo Kim, Giusy Caprara, Elizabeth Wagner, Ting-Ting Du, Leonid Petrov, Wenhao Xu, Runjia Cui, Ivan Rebustini, Bechara Kachar, Anthony Peng, and Jung-Bum Shin, *Myosin-VIIa is expressed in multiple isoforms and essential for tensioning the hair cell mechanotransduction complex*. Nature Communications, 11, Article number: 2066 (2020). <https://www.nature.com/articles/s41467-020-15936-z>.

## Organization and service

2020, 2022: **(postponed then canceled due to COVID-19)** Special Session on Integrable Probability at the 2020 AMS Spring Southeastern Sectional Meeting at University of Virginia

March 13-15, 2020; March 11-13, 2022

[http://www.ams.org/meetings/sectional/2273\\_program.html](http://www.ams.org/meetings/sectional/2273_program.html)

2021: Program "Integrability and combinatorics at finite temperature" at MATRIX Institute, Australia (virtual)

June 7-18, 2021

<https://www.matrix-inst.org.au/events/integrability-and-combinatorics-at-finite-temperat>

2020: Online conference on Statistical Mechanics, Integrable Systems and Probability

April 27 - May 1, 2020

<http://mtikhonov.com/smisp/>

2020: **(postponed due to COVID-19)** Program "Integrability and combinatorics at finite temperature" at MATRIX Institute, Australia

June 1-19, 2020

<https://www.matrix-inst.org.au/events/integrability-and-combinatorics-at-finite-temperat>

2019: Virginia Integrable Probability Summer School

May 17 - June 8, 2019

<http://vipss.int-prob.org/>

2018-19: Reading seminar on Integrable Probability

<https://lpetrov.cc/reading-2019/>

2018: Workshop on Representation Theory, Combinatorics, and Geometry at University of Virginia

October 19-21, 2018

<http://math.virginia.edu/ims/workshop-fall-2018/>

2018: Conference "Integrable Probability Boston 2018 (IntProb Boston)" at MIT

May 14-18, 2018

<http://frg.int-prob.org/conference2018/>

2017+: Developer of the website and forum for the FRG "Integrable Probability"

<http://frg.int-prob.org/>

2017+: Developer of the University of Virginia Math Department website

<http://math.virginia.edu/>

2017: Conference “Seminar on Stochastic Processes 2017” at University of Virginia

March 8-11, 2017

<http://faculty.virginia.edu/ssp17/>

2016-17: Reading seminar on Integrable Probability

<https://lpetrov.cc/2016/12/reading-seminar/>

2014-17: University of Virginia Probability Seminar

<http://math.virginia.edu/seminars/probability/>

2014-17: Undergraduate Math Club at the University of Virginia

<http://math.virginia.edu/seminars/mathclub/>

## Talks and conferences

### *Seminar talks*

- 2021, November    Oregon State University, Colloquium  
Talk at MSRI Program on random matrices
- 2021, October     University of California, Davis  
University of California, Los Angeles
- 2021, September   Solvable Lattice Models Seminar, Stanford (online)
- 2021, February    Solvable Lattice Models Seminar, Stanford (online)  
Combinatorics and Probability Seminar at The Ohio State University (online)
- 2020, December   Representation Theory and Mathematical Physics Seminar at KSU (online)
- 2020, October     Columbia University Integrable Probability Seminar (online)  
UVa Math Circle (online)
- 2020, May          Institute for Information Transmission Problems (Dobrushin Lab Seminar, online)
- 2020, April        Russian Integrable Probability Seminar (online)
- 2020, February    University of Connecticut (colloquium and probability seminar)
- 2019, November   University of Virginia (Department of Physics)
- 2019, September   Tulane University

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|----------------|---|
| 2019, May      | Virginia Tech   |
| 2019, February | Kansas State University<br>University of Kansas (colloquium)  |
| 2019, January  | University of Minnesota   |
| 2018, December | Rutgers University  |
| 2018, November | University of Utah  |
| 2018, October  | University of Warwick   |
| 2018, May      | MIT   |
| 2018, March    | MIT   |
| 2018, February | University of California, Davis<br>University of California, San Diego<br>University of California, Los Angeles |
| 2018, January  | Skoltech Center for Advances Studies (Moscow, Russia)   |
| 2017, November | Columbia University<br>Northeastern University  |
| 2017, October  | Brandeis University   |
| 2017, August   | Institute for Information Transmission Problems (Dobrushin Lab Seminar)   |
| 2017, January  | Case Western Reserve University   |
| 2016, May      | MIT   |
| 2016, March    | University of Rochester   |
| 2016, March    | University of California, Davis   |
| 2016, January  | University of Wisconsin, Madison  |
| 2015, December | MSU (Meeting of the Moscow Mathematical Society)  |
| 2015, October  | Penn/Temple Probability Seminar   |



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|-----------------|---|
| 2015, August    | Institute for Information Transmission Problems (Dobrushin Lab Seminar)   |
| 2015, May       | Imperial College London   |
| 2015, March     | University of Michigan  |
| 2014, November  | Virginia Tech   |
| 2014, September | Duke University   |
| 2014, February  | MIT   |
| 2014, January   | Purdue University<br>University of British Columbia   |
| 2013, December  | University of Colorado, Boulder<br>Penn State University<br>Worcester Polytechnic Institute<br>University of Virginia<br>Carnegie Mellon University |
| 2013, November  | University of Minnesota<br>Penn State University  |
| 2013, October   | University of Southern California<br>University of California, Los Angeles<br>Rutgers University  |
| 2013, June      | Institute for Information Transmission Problems (Dobrushin Lab Seminar)   |
| 2013, March     | Independent University of Moscow (General Seminar “Globus”)   |
| 2013, February  | Arizona State University  |
| 2012, October   | Princeton University<br>Columbia University   |
| 2012, September | MIT   |
| 2012, August    | Institute for Information Transmission Problems (Yakov Sinai’s Seminar)   |
| 2012, March     | New York University   |
| 2011, October   | Brown University  |

University of Michigan

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| 2011, May     | Alfréd Rényi Institute of Mathematics<br>Budapest University of Technology and Economics |
| 2008, October | St. Petersburg Department of Steklov Mathematical Institute                              |

In addition to that, I have presented results of my research in a number of talks given at various research seminars in Moscow, Russia (at Moscow State University, Institute for Information Transmission Problems, Independent University of Moscow, etc.) in 2005–2011, at Northeastern University, Boston, MA, USA in 2011–2014, and at University of Virginia, Charlottesville, VA, USA since 2014.

### *Conference talks*

52. Sergei Kerov memorial conference “New perspectives in asymptotic representation theory”, August 2021. Online.
51. Particle Systems and Partial Differential Equations (PSPDE) IX, July 2021. Online.
50. 10th World Congress in Probability and Statistics (online), July 2021. Invited session and prize session talk.
49. Stochastic Spatial Processes at OSU (online), March 2021. Organized by Elliot Paquette and David Sivakoff.
48. New Connections in Integrable Systems (online), September 2020. Organized by Valentin Buciumas and Ole Warnaar.
47. Central and invariant measures and applications (online), August 2020. Organized by St. Petersburg Department of V. A. Steklov Mathematical Institute; Euler International Institute.
46. CMI-HIMR Integrable Probability Summer School (online), August 2020. Organized by Clay Mathematics Institute, the Heilbronn Institute for Mathematical Research, the Mathematical Institute at University of Oxford, and the NSF Integrable Probability Focused Research Grant.
45. Workshop on Asymptotic Algebraic Combinatorics at IPAM (UCLA), February 2020, Los Angeles, CA.
44. Joint Mathematics Meetings 2020, January 2020, Denver, CO. *Special session talk*.
43. BIRS Workshop “Dimers, Ising Model, and their Interactions”, November 2019, Banff, Canada.

42. AMS Fall Eastern Sectional Meeting at Binghamton University, October 2019, Binghamton, NY. *Two special session talks.*
41. Workshop New Trends in Integrable Systems, September 2019, Osaka, Japan.
40. Workshop on Classical and Quantum Integrable Systems (CQIS-2019), July 2019, St. Petersburg, Russia.
39. Summer School “Contemporary Mathematics” (mini-course in Russian for high school and beginning undergraduate students), July 2019, Dubna, Russia.
38. BIRS Workshop “Asymptotic Algebraic Combinatorics”, March 2019, Banff, Canada.
37. Conference “New Frontiers in Representation Theory” dedicated to the 70th birthday of G.I.Olshanski, SkolTech Center for Advances Studies, January 2019, Moscow, Russia.
36. AMS Fall Eastern Sectional Meeting at University of Delaware, September 2018, Newark, DE. *Special session talk.*
35. The 40th Conference on Stochastic Processes and their Applications (SPA2018), June 2018, Gothenburg, Sweden. *Invited session talk.*
34. Integrable Probability Boston 2018 (IntProb Boston) Conference, MIT, May 2018, Cambridge, MA, USA.
33. 2018 Southeastern Probability Conference, Duke University, May 2018, Durham, NC, USA.
32. “Non-equilibrium systems and special functions” program at MATRIX Institute, January 2018, Creswick, Victoria, Australia.
31. Meeting of the FRG “Integrable Probability”, Columbia University, October 2017, New York, NY, USA.
30. Chern-Simons Workshop “Integrability across mathematics and physics” at University of California, Berkeley, September 2017, Berkeley, CA, USA.
29. International Workshop on Classical and Quantum Integrable Systems (CQIS-2017), July 2017, Moscow, Russia.
28. The 39th Conference on Stochastic Processes and their Applications (SPA2017), July 2017, Moscow, Russia. *Invited session talk.*
27. PCMI Summer Session 2017 “Random Matrices”, June–July 2017, Park City, UT, USA.
26. Conference “Qualitative Methods in KPZ Universality”, CIRM, April 2017, Marseille, France.
25. Workshop on Asymptotic Representation Theory, Henri Poincaré Institute, February 2017, Paris, France.

24. Clifford Lectures "Random Matrices, Combinatorics and Tiling Problems" (main speaker: Pierre van Moerbeke) at Tulane University, November 2016, New Orleans, LA, USA.
23. Central Spring AMS Sectional Meeting at North Dakota State University, April 2016, Fargo, ND, USA. *Special session talk*.
22. Workshop "Six-vertex model, dimers, shapes, and all that" at the Simons Center for Geometry and Physics, March 2016, Stony Brook, NY, USA.
21. Program "New Approaches to Non-equilibrium and Random Systems: KPZ Integrability, Universality, Applications and Experiments" at the Kavli Institute for Theoretical Physics, March 2016, Santa Barbara, CA, USA.
20. Workshop on Classical and Quantum Integrable Systems (CQIS-2015), Institute for High Energy Physics, July 2015, Protvino, Russia. Tutorial lecture "*Integrable probability and Bethe ansatz*".
19. "Random Interfaces and Integrable Probability" workshop (part of "Statistical Mechanics, Integrability and Combinatorics" program), Galileo Galilei Institute for Theoretical Physics, June 2015, Florence, Italy.
18. "Random Polymers and Algebraic Combinatorics" workshop, Mathematical Institute of the University of Oxford, May 2015, Oxford, UK.
17. "Limit shapes" workshop, ICERM, April 2015, Providence, RI, USA.
16. Central Spring AMS Sectional Meeting at Michigan State University, March 2015, East Lansing, MI, USA. *Special session talk*.
15. Columbia–Princeton Probability Day, March 2015, Princeton, NJ, USA. I was one of the two junior speakers at a one-day seminar series, with a talk "*Eigenfunctions of stochastic integrable particle systems*".
14. Inhomogeneous Random Systems conference, Henri Poincaré Institute, January 2015, Paris, France.
13. International Congress of Mathematicians, August 2014, Seoul, South Korea. *Contributed talk*.
12. Workshop "From Macdonald Processes to Hecke Algebras and Quantum Integrable Systems" at Henri Poincaré Institute, May 2014, Paris, France.
11. Workshop "Random Matrices and Jacobi Operators" at Mittag-Leffler Institute, May 2014, Stockholm, Sweden.
10. Columbia / Courant Joint Probability Seminar Series on Kardar-Parisi-Zhang Universality. I was one of the three speakers of the seminar series, with a talk "*Markov Dynamics on Macdonald Processes*". October 2013, New York, NY, USA.

9. Cornell Probability Summer School, July 2013, Ithaca, NY, USA. *Tutorial sessions for the lecture course of A. Borodin, and a short talk.*
8. Random Tilings Workshop at the Simons Center for Geometry and Physics, February 2013, Stony Brook, NY, USA.
7. MSRI “Random Spatial Processes” program, April 2012, Berkeley, CA, USA.
6. Interacting Particle Systems, Growth Models, and Random Matrices Workshop at the University of Warwick, March 2012, Warwick, UK.
5. International conference “50 years of IITP”, July 2011, Moscow, Russia.
4. EURANDOM Workshop YEP VIII 2011 “Stochastic Models for Population Dynamics”, March 2011, Eindhoven, Netherlands.
3. Mathematics – XXI century. PDMI 70th anniversary, September 2010, St. Petersburg, Russia.
2. PIMS/UBC School in Probability, June 2009, UBC, Vancouver, Canada.
1. Summer School “Large N Limits”, August 2008, Bitche, France.

#### *Visits / membership in programs*

10. MSRI Program “Universality and Integrability in Random Matrix Theory and Interacting Particle Systems”, Berkeley, CA, August 16 - December 17, 2021.
9. AIM SQuaRE “Young tableau asymptotics”, American Institute of Mathematics, January 2021 (virtual).
8. AIM SQuaRE “Young tableau asymptotics”, American Institute of Mathematics, October 2019.
7. “Non-equilibrium systems and special functions” program at MATRIX Institute, January 2018, Creswick, Victoria, Australia (2 weeks).
6. PCMI Summer Session 2017 “Random Matrices”, June–July 2017, Park City, UT, USA (3 weeks).
5. Collaboration with Daniel Orr, Virginia Tech, June 2016, Blacksburg, VA, USA (4 days).
4. Program “New Approaches to Non-equilibrium and Random Systems: KPZ Integrability, Universality, Applications and Experiments” at the Kavli Institute for Theoretical Physics (University of California, Santa Barbara), February–March 2016, Santa Barbara, CA, USA (3 weeks).
3. Program “Statistical Mechanics, Integrability and Combinatorics”, Galileo Galilei Institute for Theoretical Physics, June 2015, Florence, Italy (1 month).

2. Collaboration with Ivan Corwin and Konstantin Matveev, Columbia University, March 2015, New York, NY, USA (3 days).
1. Visit to Alfréd Rényi Institute of Mathematics, May 2011, Budapest, Hungary (1 week).

*Other events participated*

26. Workshop on Mathematical Physics in honor of Craig Tracy, UC Davis, October 2021, Davis, CA, USA.
25. Bernoulli-IMS One World Symposium 2020 (online), August 2020. *Integrable probability live discussion session moderator*.
24. Meeting of the FRG “Integrable Probability”, MIT, November 2018, Boston, MA, USA.
23. Workshop “Transport and localization in random media: theory and applications”, Department of Applied Physics and Applied Mathematics and Department of Mathematics, Columbia University, May 2018, New York, NY, USA.
22. Eastern Spring AMS Sectional Meeting at Northeastern University, April 2018, Boston, MA, USA.
21. “Optimal and Random Point Configurations” workshop, ICERM, February–March 2018, Providence, RI, USA.
20. Current Developments in Mathematics 2017, Harvard University, November 2017, Cambridge, MA, USA.
19. 2017 Charles River Lectures on Probability Theory and Related Topics, October 2017, Harvard University, Cambridge, MA, USA.
18. SouthEastern Probability Conference “Interacting particle systems” (in honor of Professor Rick Durrett’s 65th birthday), May 2017, Duke University, Durham, NC, USA.
17. 2016 Charles River Lectures on Probability Theory and Related Topics, September 2016, MIT, Cambridge, MA, USA.
16. 37th Midwest Probability Colloquium, Northwestern University, October 2015, Evanston, IL, USA.
15. Workshop “Analytic Tools in Probability and Applications”, IMA, April 2015, Minneapolis, MN, USA.
14. Seminar on Stochastic Processes 2015 (*with participation in a panel discussion*), April 2015, University of Delaware, Newark, DE, USA.
13. Workshop on Moduli Spaces, Derived Geometry, and Geometric Representation Theory, November 2014, University of North Carolina at Chapel Hill, NC, USA.

12. 2014 Charles River Lectures on Probability Theory and Related Topics, October 2014, Harvard University, Cambridge, MA, USA.
11. Workshop “Stochastic Analysis: Around the KPZ Universality Class” at Mathematisches Forschungsinstitut Oberwolfach, June 2014, Oberwolfach, Germany.
10. 2013 Charles River Lectures on Probability Theory and Related Topics, October 2013, MIT, Cambridge, MA, USA.
9. Gelfand Centennial Conference: A View of 21st Century Mathematics, August 2013, MIT, Cambridge, MA, USA.
8. Summer School “KPZ equation and rough paths”, June 2013, Lebesgue Center of Mathematics, Rennes, France.
7. 2012 Charles River Lectures on Probability Theory and Related Topics, October 2012, Microsoft Research, Cambridge, MA, USA.
6. St. Petersburg School in Probability and Statistical Physics, June 2012, St. Petersburg, Russia.
5. Algebraic Geometry Northeastern Series (AGNES) Workshop, October 2011, Stony Brook, NY, USA.
4. Clay Institute Summer School “Probability and Statistical Physics in Two and more Dimensions”, July 2010, Buzios, Brazil.
3. Midrasha Mathematicae: The Mathematics of Oded Schramm, December 2010, Hebrew University, Jerusalem, Israel.
2. Summer School “Structures in Lie Representation Theory”, August 2009, Jacobs University, Bremen, Germany.
1. PROMYS summer program at Boston University for high school students, Boston, MA, USA, 2001.

## Teaching

Spring 2022: University of Virginia.

MATH 3100 — Introduction to Probability, 3 sections. Inverted.

Spring 2021: University of Virginia.

MATH 7370 Probability Theory II. Particle systems (graduate topics course). Online.

Independent University of Moscow.

Integrable particle systems (graduate topics course). Online; in Russian.

- Fall 2020: University of Virginia.  
MATH 3100 — Introduction to Probability, 2 sections. Online, inverted.
- Spring 2020: University of Virginia.  
MATH 3340 — Complex variables. Partially online.  
MATH 7310 — Real Analysis and Linear Spaces (graduate). Partially online.
- Fall 2019: University of Virginia.  
MATH 8380 — Random matrices (graduate).
- Spring 2019: University of Virginia.  
MATH 7310 — Real Analysis and Linear Spaces (graduate).
- Fall 2018: University of Virginia.  
MATH 3100 — Introduction to Probability, 2 sections.
- Spring 2017: University of Virginia.  
MATH 3100 — Introduction to Probability.
- Fall 2016: University of Virginia.  
MATH 2310 — Calculus III, 2 sections.
- Summer 2016: Participation in the **Course Design Institute** at the University of Virginia (a week-long training on designing courses focusing on student learning), June 2016, Charlottesville, VA, USA.
- Spring 2016: University of Virginia.  
MATH 8380 — Random matrices.
- Fall 2015: University of Virginia.  
MATH 3100 — Introduction to Probability.
- Spring 2015: University of Virginia.  
MATH 5110 — Introduction to Stochastic Processes.
- Fall 2014: University of Virginia.  
MATH 3100 — Introduction to Probability.
- Spring 2014: Northeastern University.  
MATH 7241 — Probability 1 (graduate).
- Fall 2013: Northeastern University.  
MATH 3081 — Probability and Statistics, 2 sections.
- Spring 2013: Northeastern University.  
MATH 4581 — Statistics and Stochastic Processes.



Fall 2012: Northeastern University.

MATH 1342 — Calculus II for Sci&Eng (honors section). Part of a teaching experiment at Department of Mathematics with “inverted” sections: the instructor assigns watching video-lectures accompanying the textbook for homework, and spends class-time going over problems and clarifying the material.

MATH 7382 — Topics in Probability (graduate): an expository introductory-level graduate course on solvable probabilistic models, including tools of algebraic combinatorics and representation theory.

Spring 2012: Northeastern University.

MATH 3081 — Probability and Statistics, 2 sections.

Fall 2011: Northeastern University.

MATH 1342 — Calculus II for Sci&Eng.

Spring 2011: “Math in Moscow” programme in English for international students at the Independent University of Moscow. A course in Combinatorics.

2007—2008: Moscow High School No. 17. Teacher of mathematics.

## Editing and reviewing

- Member of the editorial board at “Mathematical Physics, Analysis and Geometry” (<https://www.springer.com/journal/11040>) and “Combinatorial Theory” ([https://escholarship.org/uc/combinatorial\\_theory/](https://escholarship.org/uc/combinatorial_theory/)).
- Program committee member for FPSAC (Formal Power Series and Algebraic Combinatorics), 2017 and 2021.
- I regularly referee scholarly journal papers submitted to numerous journals, including Ann. Prob., Adv. Math., Adv. Appl. Math., Comm. Math. Phys., Intern. J. Math., Arkiv för Mat., SIGMA, J. Alg. Comb., Comm. Pure Appl. Math., Intern. Math. Res. Notices, J. Appl. Probab., J. Comb. Theory A, Symp. Th. Aspects of Comp. Sci., J. of Stat. Physics, Electron. Comm. Probab.
- I am a regular reviewer for the Mathematical Reviews database.
- I reviewed grant proposals for several funding agencies.

## Other

- Notes “Lozenge tilings and random dynamics” from the Summer School “Contemporary Mathematics” (in Russian, for high school and beginning undergraduate students), available at <https://lpetrov.cc/dubna2019/>

- Random tilings at an art exhibition

<https://www.radcliffe.harvard.edu/event/2016-art-discovery-exhibition>

- Course notes “Asymptotic representation theory”, taught by G. Olshanski at the Independent University of Moscow, Fall 2009 and Spring 2010 (in Russian). Available at <https://lpetrov.cc/art/>

Informatic skills :  $\text{\LaTeX}$ , Mathematica, Computer experimentation, Probabilistic visualization, git, Python, html/jekyll and web design, UNIX.

## Personal

**Date of birth:** November 5, 1985

**Languages:** English (fluent), Russian (native)

**Citizenship:** Russia

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