Leonid Petrov. Abbreviated CV

Professor of Mathematics. At University of Virginia since 2014
https://lpetrov.cc petrov@virginia.edu

Research areas: Integrable Probability, Mathematical Physics, Algebraic Combinatorics, Representation Theory.

Ph.D., Institute for Information Transmission Problems (2010).

Current funding

[2022–2025] NSF DMS grant 2153869 "Random Systems from Symmetric Functions and Vertex Models", $320,654

[2022–2024] 4-VA at UVA Collaborative Research Grant program "Randomness by algebraic structures", $30,000

[2020–2025] Simons Collaboration Grant for Mathematicians 709055 "Distributional symmetries in stochastic systems", $42,000.

Selected publications. Full list here

[45] Alejandro H. Morales, Greta Panova, Leonid Petrov, Damir Yeliussizov. *Grothendieck Shenanigans: Permutons from pipe dreams via integrable probability*, **arXiv preprint** 2407.21653.

[38] Amol Aggarwal, Alexei Borodin, Leonid Petrov, Michael Wheeler. *Free Fermion Six Vertex Model: Symmetric Functions and Random Domino Tilings*, **Selecta Mathematica**, 29, article 36 (2023).

[32] Leonid Petrov, Axel Saenz. *Mapping TASEP back in time*, **Probability Theory and Related Fields**, 182, 481-530 (2022).

[27] Alexey Bufetov, Leonid Petrov. *Yang-Baxter field for spin Hall-Littlewood symmetric functions*, **Forum of Mathematics Sigma** 7 (2019), e39.

[22] Vadim Gorin, Leonid Petrov. *Universality of local statistics for noncolliding random walks*, **Annals of Probability** (2019), Vol. 47, No. 5, 2686-2753.

[20] Alexei Borodin, Leonid Petrov. *Higher spin six vertex model and symmetric rational functions*, **Selecta Mathematica** 24 (2018), no. 2, 751-874.

[18] Ivan Corwin, Leonid Petrov. *Stochastic higher spin vertex models on the line*, **Communications in Mathematical Physics** 343 (2016), no. 2, 651-700.

[15] Alexei Borodin, Leonid Petrov. *Integrable probability: From representation theory to Macdonald processes*, **Probability Surveys**, 11 (2014), 1-58. Awarded the 2020 Bernoulli Prize for an outstanding survey article in probability

[9] Leonid Petrov. *Asymptotics of Random Lozenge Tilings via Gelfand-Tsetlin Schemes*, **Probability Theory and Related Fields**, 160 (2014), no. 3, 429-487.

[other] 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).

Teaching at University of Virginia (since 2014)

- Multivariable Calculus; Introduction to Probability; Introduction to Stochastic Processes; Complex Variables; Real Analysis and Linear Spaces (graduate first-year course); Asymptotic representation theory (graduate topics course); Particle Systems (graduate topics course); Random matrices (graduate topics course).
- Teaching Engagement Classes as a College Fellow (2025–2027).

Recent organizing (7 events in 2023-25)

1. SouthEastern Probability Conference - II at UVA, August 2023.
2. AMS-AWM Special Session on Solvable Lattice Models and their Applications; Joint Mathematics Meetings 2024, San Francisco, January 2024.
3. Workshop "Randomness and Lie-Theoretic Structures" at UVA, March 2024.
4. Virginia Integrable Probability Summer School, July 2024.
5. Blue Ridge Probability Day at University of Virginia, October 4, 2024.
6. AIM workshop "All roads to the KPZ universality class", CalTech, March 2025.
7. Section at the *Mathematical Congress of the Americas 2025*, Miami, July 2025.

Selected national and international service

- I guide departmental colleagues and fellow researchers on the rapidly evolving AI tools for research, teaching, and service (**post**; **presentation**). This includes creating a guide on using these tools (available on my homepage), and serving in the official role as an AI faculty Guide.
- Member of the editorial boards at "**Mathematical Physics, Analysis and Geometry**", "**Combinatorial Theory**", and "**Electronic Journal/Communications of Probability**"; Program committee member for FPSAC (Formal Power Series and Algebraic Combinatorics), 2017, 2021, and 2024.