

Andrey Sarantsev

University of Nevada in Reno

Department of Mathematics & Statistics

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RESEARCH INTERESTS

Probability, Statistics, Stochastic Analysis, Biostatistics, Stochastic Finance

Brownian and Lévy particle systems interacting through ranks; Reflected diffusions and jump-diffusions; Concentration of measure for stochastic ordinary and partial differential equations; Systemic risk and financial contagion in banking systems; Statistical analysis of stock and bond markets; Risk theory and ruin probability; Stochastic portfolio theory; Regression analysis of forest dynamics.

EMPLOYMENT

University of Nevada, Reno (UNR)

Department of Mathematics and Statistics

Assistant Professor (tenure-track), 2018–now

University of California, Santa Barbara (UCSB)

Department of Statistics and Applied Probability

Visiting Assistant Professor, 2015–2018

Mentor: JEAN-PIERRE FOUQUE

Partially supported by his NSF grant DMS 1409434

EDUCATION

University of Washington, Seattle

Ph.D. in Mathematics, 2010–2015

Adviser: SOUMIK PAL

Thesis: Competing Brownian Particles

Lomonosov Moscow State University, Moscow, Russia

Specialist (Master's equivalent) with Honors in Mathematics, 2005–2010

Undergraduate Mentor: VLADIMIR PITERBARG

57th mathematics high school

Top math high school in Moscow, Russia, 2001–2005

PUBLISHED PAPERS

1. Talagrand Concentration Inequalities for Stochastic Partial Differential Equations (2019).
With DAVAR KHOSHNEVISAN. *SPDE Anal. Comp.* **7** (4), 679–698. Available at arXiv:1709.07098.
2. Stationary Distributions and Convergence of Walsh Diffusions (2018).
With TOMOYUKI ICHIBA. *Bernoulli* **25** (4A), 2439–2478. Available at arXiv:1706.07127.
3. Dynamic Contagion in a Banking System with Births and Defaults (2019).
With TOMOYUKI ICHIBA and MICHAEL LUDKOVSKI.
Ann. Finance. **15** (4), 489–538. Available at arXiv:1807.08987.
4. Comparison Techniques for Competing Brownian Particles (2019).
J. Th. Probab. **32** (2), 545–585. Available at arXiv:1305.1653.
5. Brownian Particles with Rank-Dependent Drifts: Out-of-Equilibrium Behavior (2019).
With MANUEL CABEZAS, AMIR DEMBO, VLADAS SIDORAVICIUS.
Comm. Pure Appl. Math. **72** (7), 1424–1458. Available at arXiv:1708.01918.
6. Large Rank-Based Models with Common Noise (2019).
With PRAVEEN KOLLI. *Statistics and Probability Letters* **151**, 29–35. Available at arXiv:1802.06202

7. A Note on Transportation Cost Inequalities for Diffusions with Reflections (2019).
With SOUMIK PAL. *Electr. Comm. Probab.* **24** (21), 1–11. Available at arXiv:1808.02164.
8. Modeling Systemic Risk with Interbank Flows, Borrowing, and Investing (2018).
With ADITYA MAHESHWARI. *Risks* **6** (4), 1–26. Available at arXiv:1707.03542.
9. Weak Convergence of Obliquely Reflected Diffusions (2018).
Ann. Inst. H. Poincare **54** (3), 1408–1431. Available at arXiv:1509.01778.
10. Multiple Collisions in Systems of Competing Brownian Particles (2018).
With CAMERON BRUGGEMAN. *Bernoulli* **24** (1), 156–201. Available at arXiv:1309.2621.
11. Infinite Systems of Competing Brownian Particles (2017).
Ann. Inst. H. Poincare **53** (4), 2279–2315. Available at arXiv:1403.4229.
12. Yet Another Condition for Absence of Collisions for Competing Brownian Particles (2017).
With TOMOYUKI ICHIBA. *Electr. Comm. Probab.* **22** (8), 1–7. Available at arXiv:1608.07220.
13. Stationary Gap Distributions for Infinite Systems of Competing Brownian Particles (2017).
With LI-CHENG TSAI. *Electr. J. Probab.* **22** (56), 1–20. Available at arXiv:1608.00628.
14. Reflected Brownian Motion in a Convex Polyhedral Cone: Tail Estimates for the Stationary Distribution (2017). *J. Th. Probab.* **30** (3), 1200–1223. Available at arXiv:1509.01781.
15. Two-Sided Infinite Systems of Competing Brownian Particles (2017).
ESAIM Probab. Stat. **21**, 317–349. Available at arXiv:1509.01859.
16. Explicit Rates of Exponential Convergence for Reflected Jump-Diffusions on the Half-Line (2016).
ALEA Lat. Am. J. Probab. Math. Stat. **13** (2), 1069–1093. Available at arXiv:1509.01783.
17. Penalty Method for Reflected Diffusions on the Half-Line (2016).
With CAMERON BRUGGEMAN. *Stochastics* **89** (2), 485–509. Available at arXiv:1509.01776.
18. Diverse Market Models of Competing Brownian Particles with Splits and Mergers (2016).
With IOANNIS KARATZAS. *Ann. Appl. Probab.* **26** (3), 1329–1361. Available at arXiv:1404.0748.
19. Triple and Simultaneous Collisions of Competing Brownian Particles (2015).
Electr. J. Probab. **20** (29), 1–28. Available at arXiv:1401.6255.
20. On a Class of Diverse Market Models (2014).
Ann. Finance **10** (2), 291–314. Available at arXiv:1301.5941.

ACCEPTED PAPERS

1. Exponential Convergence Rate of Ruin Probabilities for Level-Dependent Levy-Driven Risk Processes (2019).
With PIERRE-OLIVIER GOFFARD. To appear in *J. Appl. Probab.* Available at arXiv:1710.01845.
2. Stable Systems of Competing Levy Particles (2019).
With CLAYTON BARNES. Available at arXiv:1610.04323.

OTHER PAPERS

1. A Note on Bayesian Long-Term S&P 500 Factor Investing (2019).
With TARAN GROVE and AKRAM RESHAD. Available at arXiv:1905.04603.
2. The Size Effect Revisited (2019).
With BRANDON FLORES, TARAN GROVE, and YI LIU. Available at arXiv:1907.08911.
3. Partisan Lean of States: Electoral College and Popular Vote (2019).
Available at arXiv:1905.04444.
4. Penalty Method for Obliquely Reflected Diffusions (2019).
With CHARLES AMPONSAH. Available at arXiv:1509.01777.
5. Stationary Distributions and Convergence for M/M/1 Queues in Interactive Random Environment (2019).
With YANA BELOPOLSKAYA, GUODONG PANG, and YURII SUHOV. Available at arXiv:1902.03941.
6. Laguerre and Jacobi Analogues of the Warren Process (2017).
Appendix for the paper by YI SUN. Available at arXiv:1610.01635.

FELLOWSHIPS AND AWARDS

2010	Academic Excellence Award, McKibben & Merner Fellowship (2-year), for passing Preliminary (Qualifying) Exams at the beginning of the first year of the PhD program
2010	Top Report Award on the 17th International Conference “Lomonosov-2010”
2005–2010	Academic Fellowship, Lomonosov Moscow State University (7 times)
2002, 2005	Honorable Mention, Moscow Mathematical Olympiad

TEACHING EXPERIENCE**Assistant Professor, University of Nevada, Reno**

2018–2019	Instructor: Probability I, Stochastic Processes
2019	Mentor: Undergraduate Research in Quantitative Finance

Visiting Assistant Professor, University of California, Santa Barbara

2015–2018	Instructor: Probability I; Applied Stochastic Processes I, II
2017–2018	Mentor: Undergraduate Research in Quantitative Finance

Ph.D. Student, University of Washington, Seattle

2012–2015	Instructor: Multivariable Calculus, Vector Calculus, Differential Equations, Matrix Algebra, Linear Analysis (PDE, systems of ODE), Probability I
2011, 2013	Teaching Assistant: REU Program in Inverse Problems
2011–2012	Homework Grader: Real Analysis (graduate level)
2010–2012	Quiz Sections Instructor: Multivariable Calculus (Calculus III)

INVITED TALKS

2019	INFORMS Annual Meeting in Seattle (two talks)
2018	Florida State University; Cornell University; Carnegie Mellon University; California State University, Los Angeles; University of Nevada, Reno; Frontier Probability Days; University of Minnesota, Twin Cities; UCSB (twice); University of Washington, Seattle; AMS Western and Eastern Fall Sectional Meetings
2017	AMS Western, Southwestern, and Central Fall Sectional Meetings; INFORMS Annual Meeting in Houston; Center for Financial Mathematics & Actuarial Research (UCSB) 10th anniversary conference; University of Utah; UCSB; Boston University; 9th Western Conference in Mathematical Finance; Seminar on Stochastic Processes (short talk); University of Maryland, College Park; University of Delaware; AMS Central Spring Sectional Meeting (three talks); University of Washington, Seattle
2016	SIAM Conference in Financial Mathematics; Michigan State University; Carnegie Mellon University; Oregon State University; University of Washington, Seattle (twice); University of Illinois, Chicago; Princeton University; Columbia University; City University of New York
2015	Southern California Probability Symposium; University of Southern California; UCSB
2014	Columbia University; Seminar on Stochastic Processes (short talk); UCSB

LANGUAGES AND SOFTWARE

English (fluent), Russian (native); MATLAB, C, Python, R, \LaTeX , HTML.

PERSONAL INFORMATION

Born October 9, 1989, in Moscow, Russia. Citizenship: Russian.