

Oleg Butkovsky

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CURRENT POSITION

Postdoctoral fellow, from 1/2017

Technische Universität Berlin &

Weierstrass Institute for Analysis and Stochastics, Germany

Host Professor: Michael Scheutzow

PREVIOUS POSITIONS

Postdoctoral fellow, 08/2015–12/2015

Mathematical Sciences Research Institute, Berkeley, California

Member of a special MSRI program: Deterministic Dynamics and Randomness in High and Infinite Dimensional Systems.

Host Professor: Fraydon Rezakhanlou

Postdoctoral fellow, 10/2013–12/2016

Technion — Israel Institute of Technology, Israel

Host Professor: Leonid Mytnik

EDUCATION

Ph.D. in Probability and Statistics, 10/2009–07/2013

Department of Probability Theory, Moscow State University

Scientific Advisors: Alexander Veretennikov & Alexander Bulinski

B.Sc.+M.Sc. in Mathematics, 09/2004–07/2009, *First Class Honours*

Department of Probability Theory, Moscow State University

GPA 5.0/5.0

PUBLICATIONS

1. Couplings via comparison principle and exponential ergodicity of SPDEs in the hypoelliptic setting (with M. Scheutzow)
Communications in Mathematical Physics, **379**(3), 1001-1034, 2020.
2. Generalized couplings and ergodic rates for SPDEs and other Markov models (with A. Kulik, M. Scheutzow)
Annals of Applied Probability, **30**(1), 1-39, 2020.

3. Strong existence and uniqueness for stable stochastic differential equations with distributional drift (with S. Athreya, L. Mytnik)
Annals of Probability, **48**(1), 178-210, 2020.
4. Regularization by noise and flows of solutions for a stochastic heat equation (with L. Mytnik)
Annals of Probability, **47**(1), 165–212, 2019.
5. Invariant measures for stochastic functional differential equations (with M. Scheutzow)
Electronic Journal of Probability, **22**(98), 1-23, 2017.
6. Subgeometric rates of convergence of Markov processes in the Wasserstein metric
Annals of Applied Probability, **24**(2): 526–552, 2014.
7. On ergodic properties of stochastic McKean-Vlasov equations
Theory of Probability and Its Applications, **58**(4), 661–674, 2014.
8. On asymptotics for Wasserstein coupling of a Markov chain (with A.Yu. Veretennikov)
Stochastic Processes and their Applications, **123**(9): 3518–3541, 2013.
9. On the convergence of nonlinear Markov chains
Doklady Mathematics, **86**(3): 824-826, 2012.

PREPRINTS

1. Well-posedness of stochastic heat equation with distributional drift and skew stochastic heat equation (with S. Athreya, K. Lê, L. Mytnik)
arXiv preprint arXiv:2011.13498, 2020.
2. Approximation of SDEs—a stochastic sewing approach (with K. Dareiotis, M. Gerencsér)
arXiv preprint arXiv:1909.07961, 2019.
3. Asymptotic strong Feller property and local weak irreducibility via generalized couplings (with F. Wunderlich)
arXiv preprint arXiv:1912.06121, 2019.

GRANTS AND AWARDS

MSRI grant for postdocs to spend Fall 2015 Semester at MSRI.

Special award from the jury for an outstanding Ph.D. thesis, 2013.

ISBA (International Society for Bayesian Analysis) travel grant to attend 36th SPA conference and give there a contributed talk, 2013.

RFBR (Russian Foundation for Basic Research) grants 10-01-00397 and 13-01-00612.

Government of Russia scholarship for talented students, 2009.

Potantin scholarship for outstanding students, 2008, 2009.

SUPERVISION OF MASTER STUDENTS

Fabrice Wunderlich, TU Berlin, March 2019 – October 2019. Current position: PhD student at Oxford University.

TEACHING EXPERIENCE (SELECTED)

Applications of Stochastic Processes
Technion, Department of Electrical Engineering

Financial Mathematics
Technion, Department of Industrial Engineering and Management

Stochastic Processes
Moscow State University, Department of Mathematics and Mechanics

Applied Probability for Engineers and Applied Statistics for Engineers
Moscow State University, Department of Chemistry

FURTHER ACTIVITIES

Referee for the journals: Annals of Probability (2), Annals of Applied Probability (1), Probability Theory and Related Fields (2), Annales de l'Institut Henri Poincaré (4), Electronic Journal of Probability (2), Stochastic Processes and their Applications (1), Bernoulli (1).

Conference organizer: 13th Annual ERC Berlin-Oxford Meeting on Applied Stochastic Analysis.

INVITED CONFERENCE TALKS

Well-posedness of stochastic heat equation with distributional drift and skew stochastic heat equation
Bernoulli-IMS 10th World Congress in Probability and Statistics, South Korea, cancelled due to Covid-19.

Regularization by noise for SDEs and related systems: a tale of two approaches
Eighth Bielefeld-Korean joint Workshop in Mathematics, Germany, Bielefeld, February 2020.

Numerical methods for SDEs - a stochastic sewing approach
12th Oxford-Berlin Meeting on Applied Stochastic Analysis, Oxford, UK, December 2019.

Stochastic sewing lemma with propagators and uniqueness of solutions of stochastic heat equation with distributional drift
Berlin-Leipzig workshop in analysis and stochastics, Leipzig, Germany, January 2019.

Couplings for exponential ergodicity of SPDEs in the hypoelliptic and effectively elliptic settings
10th Oxford-Berlin Meeting on Applied Stochastic Analysis, Oxford, UK, December 2018.

Generalized couplings and exponential ergodicity of nonlinear SPDEs
Banff workshop on Interacting Particle Systems and Parabolic PDEs, Banff, Canada,
August 2018.

Regularization by noise for the stochastic heat equation *Workshop on Stochastic Differential Equations*, University of Mannheim, Germany, June 2016.

INVITED SEMINAR TALKS (SELECTED)

New coupling techniques for exponential ergodicity of SPDEs in the hypoelliptic and effectively elliptic settings *New York University, Courant Institute Probability and Mathematical Physics seminar*, New York, USA, February 2019.

Generalized couplings and rate of convergence of SPDEs to the invariant measure
Imperial College London, Probability Seminar, London, UK, March 2018.

Regularization by noise and path-by-path uniqueness for SDEs and SPDEs
Oxford University, Stochastic Analysis seminar, Oxford, UK, February 2018.

Regularization by noise and path-by-path uniqueness for SDEs and SPDEs
Max-Planck-Institut für Mathematik, Probability seminar, Leipzig, Germany, February 2018.

Convergence of Markov processes to the invariant measure in the Wasserstein metric with applications to SPDEs and stochastic delay equations
Friedrich-Schiller-Universität Jena, Seminar zur Stochastik, Jena, Germany, July 2017.

Regularization by noise and flows of solutions for a stochastic heat equation
Aarhus University, Department of Mathematics, Thiele Seminar, Aarhus, Denmark, March 2017.

Path-by-path uniqueness for stochastic heat equation
MSRI Probability Seminar, Berkeley, California, USA, October 2015.

On ergodic properties of stochastic McKean-Vlasov equations
University of Edinburgh, North British Probability Seminar, Edinburgh, UK, January 2013.

LANGUAGES

Native Russian, fluent English, intermediate Hebrew.