BORIS ROZOVSKY
Ford Foundation Professor of Applied Mathematics

Curriculum Vitae

Education

Ph. D. Moscow State Lomonosov University, 1972,
Dr. of Science, Vilnius University, 1984.

Appointments

2009- Ford Foundation Professor, Division of Applied Mathematics, Brown University.
2006- Professor, Division of Applied Mathematics, Brown University.
1991-2006 Professor, Department of Mathematics, University of Southern California.
1992-2006 Director, Center for Applied Mathematical Sciences, University of Southern California.
1995-98 Professor, Dept. of Electrical Engineering Systems (secondary appointment) University of Southern California.
1989-91 Professor, Department of Mathematics, The University of North Carolina at Charlotte.
1988-89 Visiting Distinguished Professor, Department of Mathematics The University of North Carolina at Charlotte.
1980-88 Professor, Moscow Institute for Advanced Studies for Chemistry Managers and Engineers, Moscow.
1971-80 Senior Lecturer, Moscow Institute for Advanced Studies for Chemistry Managers and Engineers, Moscow.
1970-71 Junior Researcher, Moscow State (Lomonosov) University, Kolmogorov's Statistics Laboratory.

Research Interests

Stochastic processes and random fields, stochastic partial differential equations, nonlinear, stochastic processes, stochastic fluid dynamics, mathematical modeling of high speed computer networks, financial mathematics.

Grants (in the last 5 years)

1. ARO grant (conference support, H. Dong is co-PI) 2017

2. ARO grant (Chi-Wang Shu is co-PI) 2016-2020
3. OSD-MURI FA9550-09-1-0613 (Co-PI) ARO Grant W911NF1310012 (PI) 2012-2015

Selected Publications (in the last 5 years)

Book: : B.L. Rozovsky, S. Lototsky. Stochastic Evolution Systems, second edition, Springer, in preparation.

Book: S. Lototsky and B.L. Rozovsky, Stochastic Partial Differential Equations, Springer, 2017; released July 2017.

Papers

R. Mikulevicius and B. Rozovsky and , "On distribution free Skorokhod- Malliavin Calculus", J. Stochastic Partial Differential Equations: Analysis and Computations, 2016

Z. Zhang, B. Rozovsky, and G. E. Karniadakis. "Strong and weak convergence rate of finite element methods for semi-linear equations with additive white noise" J. of Numer. Math.,134: 61-89, 2016

Z. Zhang, M. V. Tretyakov, B. Rozovskii, and G. E. Karniadakis. "Wiener chaos vs stochastic collocation methods for linear advection-diffusion quations with multiplicative white noise". SIAM J. Numer. Anal., 53(1): 153-183, 2015

Zhang, M. V. Tretyakov, B. Rozovsky, and G. E. Karniadakis. "A recursive sparse grid collocation method for differential equations with white noise". SIAM J. Sci. Comput., 36(4): pp. A1652–A1677, 2014.

D. Venturi, X. Wan, R. Mikulevicius, B. L. Rozovsky, G. E. Karniadakis, "Wick-Malliavin approximations to nonlinear stochastic partial differential equations: analysis and simulations". Proceedings of the Royal Society, 2013

S. Lototsky, B. Rozovsky, and D. Selesi. "On Generalized Malliavin Calculus". Stochastic Analyses and Applications, 122, pp 808-843, 2012.

R. Mikulevicius and B. Rozovsky, "On unbiased stochastic Navier-Stokes equation", Probab. Theory Related Fields, 154, pp. 787-834, 2012.

Lototsky, B. Rozovsky, and D. Selesi. "On Generalized Malliavin Calculus", Stochastic Analyses and Applications, 122, pp 808-843, 2012.

R. Mikulevicius and B. Rozovsky, "On unbiased stochastic Navier-Stokes equation", Probab. Theory Related Fields, 154, pp. 787-834, 2012.

Zhang, B. Roz0osky, M.V. Tretyakov and G.E. Karniadakis, "A multi-stage Wiener chaos expansion method for stochastic advection-diffusion –reaction equations", SIAM J. Sci. Comput., 34(2), pp. A914-A936, 2012.

B. Rozovsky¸ J. Park and R. Sowers, "Efficient Nonlinear Filtering of a Singularly Perturbed Stochastic Hybrid System" London Math. Society J. of Mathematics and Computation, (submitted), 2012.

S. Lototsky , B. Rozovsky, and X. Wan, "Elliptic equations of higher stochastic order ESAIM: Math. Modeling and Numerical Anal.", 44 (2010) no. 5, pp. 1135-1153, 2010.

R. Mikulevicius and B. Rozovsky, "On unbiased stochastic Navier-Stokes equation", Probab. Theory Related Fields, 154, pp. 787-834, 2012.

B. Rozovsky¸ J. Park and R. Sowers, "Efficient Nonlinear Filtering of a Singularly Perturbed Stochastic Hybrid System" London Math. Society J. of Mathematics and Computation, (submitted), 2012.

S. Lototsky , B. Rozovsky, and X. Wan, "Elliptic equations of higher stochastic order ESAIM: Math. Modeling and Numerical Anal.", 44 (2010) no. 5, pp. 1135-1153, 2010.

Crisan, B. Rozovsky (Eds) The Oxford Handbook on Nonlinear Filtering, Oxford University Press, 2011.

C.-Y. Lee, B. Rozovsky, and H. M. Zhow, " Randomization of forcing in large systems of PDE for improvement of energy estimates", SIAM J. Multiscale Modeling and Simulation, 8, no. 4, 1419-1438, 2010.

X. Wan, B. Rozovsky and G.E. Karniadakis, "A stochastic modeling methodology based on weighted Wiener chaos and Malliavin calculus", Proc. Nat. Acad. Sciences, vol. 106, no. 34, pp. 14189-14194, 2009.

S. Lototsky , B. Rozovsky, "A unified approach to stochastic evolution equations using the Skorokhod integral", Probability Theory and Appl., 54 , no. 2, 2009.

S. Lototsky , B. Rozovsky. Stochastic differential equations driven by purely spatial noise, SIAM J. on Mathematical Analysis, 41, no.4, 1295-1322, 2009.

Ph.D. Students

M. Huebner, K. Owens, A. Fung, S. Lototsky,
C. Rao, S. Kligys, A. Petrov, G. Yaralov, A. Papanicolaou, C.-Y. Lee.

(d) Honors/Awards

- Doctor of Physical and Mathematical Sciences,
  Vilnius State University, 1984,
- Institute of Mathematical Statistics, Fellow, 1997,
- International Academy of Natural and Social Sciences, Peter-the-Great Medal, 1997,
- Kolmogorov Centennial Conference, Kolmogorov Medal, 2003.
- Ford Foundation Professor of Applied Mathematics, Brown University, 2009.

(a) **Collaborators & Other Affiliations**

Collaborators: R. Mikulevicius, S. Lototsky, D. Venturi, A. Wan, A. N. Shiryaev (MSU), G. Lin (DOE/PNL), D. Crisan, R. Dalang, A. De Bouard, G. Da Prato, I.

Gyongy, F. Flandoli M. Hairer, N. Krylov, S. Kuksin, T. Lyons, J. Mattingly, C. Mueller, F.Nobile, D. Nualart, G. Papanicolaou, E. Pardoux, M. Roeckner, M. Sanz-Sole, C. Schwab, A. Stuart, S. Suganidis, M. Freidlin, Ya. Sinai, R. Temam

Advisors

A. N. Shiryaev (Moscow State University, PhD), E.B. Dynkin (Moscow State University, MS)

Editorial Work

Journal "Stochastic Partial Differential Equations: Analysis and Computations". Springer, (2012-present, Editor-in Chief),
SIAM J. on Uncertainty Quantification (2012-present, Associate Editor),
Bernoulli Journal (2012-present, (2012-present, Associate Editor),
Stochastic Modeling and Applied Probability, Springer-Verlag (2001-2012, Editor),
SIAM J. on Mathematical Analysis (2001-2012 , Associate Editor)
*Asymptotic Analysis (*2006-present, Member of Advisory Board)
Annals of Probability (1997-2002, Associate Editor)
Electronic Journal of Probability (1995-2002, Associate Editor)
Stochastic Processes and their Applications (1996-1998, Associate Editor)

Invited Talks and Courses of Lectures (2014-2017)

1) SPDE's and Applications-IX Levico-Terme, Italy, January 5-11, 2014.
2) 10th AIMS Conference, Madrid, Spain, July 2014.
3) Computational Math, July 29-31, Arligton, VA.
4) Math Colloquium at WPI, October 2014.
5) Math Colloquium at Princeton Univ- March 2015.
6) Math Colloquium at Stanford University- May, 2015.
7) Workshop at Brown University "Deterministic and Stochastic Partial Differential Equations" (organizer)- November 2015.
8) Monash Probability Conrefence; Prato, Italy, April 2016.
9) Nonlinear PDEs, stochastic control and filtering: new methods and applications. Edinburgh, May 2017.

Others:

1. International Conference in Stochastic Partial Differential Equations, Trento, Italy, 1990.
2. 2nd World Congress of the Bernoulli Society for Mathematical Statistics, Uppsala, Sweden, 1990.
3. University of Paris VI, 1990.
4. University of Provence, Marseille, France, 1990, 1991.
5. U.S.-Russian Conference on MHD Stability and Dynamos, University of Chicago, Chicago, IL, 1992.
6. Workshop on White Noise Models and Stochastic Systems, Twente, The Netherlands, 1992.
7. Workshop on Stochastic Control, Montreal, Canada, 1992.

8. ONR Workshops. Random Fields for Oceanographic Modeling, Washington, D.C., 1990; Santa Barbara, CA, 1991; Miami, FL, 1992.

9. 10th Annual Joint Summer Research Conferences in the Mathematical Sciences, Control and Identification of Partial Differential Equations, Mount Holyoke College, South Hadley, MA, 1992.

10. Conference on Stochastic Partial Differential Equations, Rochester, NY, 1992.

11. Workshop on Stochastic PDE and Superprocesses (AMS Direction in Probability Workshops), Medford, MA, 1992.

12. University of Minnesota, Minneapolis, MN, 1992.

13. 4th International Conference on Advances in Communication and Control Rhodes, Greece, 1993.
14. AMS Summer Institute, Stochastic Analysis, Ithaca, NY, 1993.
15. Southern California Annual Conference in Probability and Statistics, Los Angeles, CA, 1993.
16. Sixth Annual Copper Mountain Conference on Multigrid Methods (session organizer), Copper Mountain, CO, 1993.
17. ONR Workshop on Random Fields for Oceanographic Modeling (organizer), Los Angeles, CA, 1993.
18. USC-Hughes Workshop on Stochastic Modeling and Simulation (organizer), Los Angeles, CA, 1993.
19. Naval Ocean Systems Center, San Diego, CA, 1993.
20. International conference, "Stochastic Partial Differential Equations and Random Media," Marseille, France, 1994.
21. Fourth Eugene Lukas Symposium, Bowling Green, OH, 1994.
22. Hughes-USC Workshop on Stochastic Modeling and Simulation in Material Science, Los Angeles, CA, 1994.
23. Southern California Conference on PDE's and Analysis, Los Angeles, CA, 1994.
24. U.S.-Japan Bilateral Seminar on Stochastic Analysis in Infinite Dimensional Spaces, University of Louisiana, New Orleans, LA, 1994.
25. Workshop in Nonlinear Filtering, Chapel Hill, NC, 1994.
26. 3rd World Congress of the Bernoulli Society, Chapel Hill, NC, 1994.
27. 1994 SIAM Annual Meeting, San Diego, CA, 1994.
28. 1994 ONR Workshop on Random Fields, Santa Barbara, CA, 1994.
29. University of Minnesota, Minneapolis, MN, 1995.
30. American Mathematical Society--Israel Mathematical Union, Joint Meeting, 1995.
31. Technion, Haifa, Israel, 1995.
32. University of Tel Aviv, Israel, 1995.
33. Third IEEE Mediteranean Symposium on New Directions in Control and Automation, Limasol, Cyprus, 1995.
34. Joint Meeting of Southern California Sections of MAA and SIAM, San Diego, CA, 1996.
35. Fourth World Congress of Bernoulli Society, Vienna, Austria, 1996.
36. International Workshop on Computational and Statistical Issues for Stochastic Processes, Cremona, Italy, 1996.
37. Conference on Stochastic Analysis, Random Fields and Applications, Ascona, Switzerland, 1996.
38. 1996 SIAM Annual Meeting, Kansas City, MO, 1996.
39. Workshop on Stochastic Control and Nonlinear Filtering, North Carolina State University, Charlotte, NC, 1996.
40. 36th IEEE Conference on Decision and Control, Kobe, Japan, 1996
41. Some Problems of Stochastic Analysis, Workshop, Michigan State University, East Lansing, MI, 1996.
42. Topics on Stochastic Control, Workshop, Osaka University, Osaka, Japan, 1996.

Other Publications:
Books

Stochastic evolution systems. Linear theory and applications to the statistics of random processes (in Russian). Moscow: "Nauka," 1983.

. *Data analysis in chemical research*. *Statistical foundations* (in Russian), Moscow: "Khimija," 1984.

Stochastic evolution systems. Linear theory with applications to non-linear filtering. Mathematics and its Applications (Soviet Series) 35. Dordrecht: Kluwer Academic Publishers, 1990.

Edited Volumes:

.
The Oxford Handbook on Nonlinear Filtering (with D. Crisan), Oxford University Press, 2011.

Applied Mathematics & Optimization. Special issue on Approximation in Stochastic Partial Differential Equations, (Guest Ed. B. Rozovskii), Springer, 2006.

Stochastic partial differential equations: six perspectives. (Ed. R. Carmona and B. L. Rozovskii) Mathematical Surveys and Monographs Series **64**. Providence, RI: American Mathematical Society, 1998.

Statistics and control of stochastic processes. The Liptser festschrift: papers from the Steklov Seminar (Moscow, 1995/1996). Ed. Yu. M. Kabanov, B. L. Rozovskii, and A. N. Shiryaev. River Edge, NJ: World Scientific, 1997.

S*tochastic modeling in oceanography*. Ed. R. Adler, P. Muller, and B. L. Rozovskii. Progress in Probability 39. Boston: Birkhauser, 1996.

St*ochastic partial differential equations and their applications. Proceedings of the IFIP WG 7/1 International Conference (Charlotte, NC, 1991)*. Ed. B. L. Rozovskii and R. B. Sowers. Lecture Notes in Control and Information Sci. **176**. Berlin: Springer-Verlag, 1992.

Papers (in refereed journals/books)

1. On Generalized Malliavin Calculus, J. Stochastic Analyses and Applications (with S. Lototsky and D. Selesi), 122 (2012), pp 808-843.

2. On unbiased stochastic Navier-Stokes equation (with R. Mikulevicius), Probab. Theory Related Fields, 154 (2012), pp. 787-834.

3. A multi-stage Wiener chaos expansion method for stochastic advection-diffusion-reaction equations (with Z. Zhang, M.V., Tretyakov and G. Karniadakis), SIAM J. Sci. Comp. V. 34, No 2, pp. A914-A936.

4. Efficient Nonlinear Filtering of a Singularly Perturbed Stochastic Hybrid System

(with J. Park and R. Sowers), London Math. Society J. of Mathematics and Computation (submitted), 2010.

5. Elliptic equations of higher stochastic order (with S. Lototsky and X. Wan), ESAIM: Math. Modeling and Numerical Anal., 44 (2010) no. 5, 1135-1153

6. A stochastic finite element method for stochastic parabolic equations driven by purely spatial noise (with C.-Y. Lee) Communications on Stochastic Analysis, **4**, (2010), no. 2, 271-297.

7. Randomization of forcing in large systems of PDE for improvement of energy estimates (with C.-Y. Lee and H. M. Zhow) SIAM J. Multiscale Modeling and Simulation, **8** (2010), no. 4, 1419-1438.

8. A new stochastic modeling methodology based on weighted Wiener chaos and Malliavin calculus, (with G. Karniadakis and X. Wan), *Proc. Natl. Acad. Sc. USA*, **106** (2009), no. 34, 14189-14104.

9. A unified approach to stochastic evolution equations using the Skorokhod integral, (with S. Lototsky), Probability Theory and Appl.), **54** , no. 2, 2009.

10. Stochastic differential equations driven by purely spatial noise, (with S. Lototsky), SIAM Journal on Mathematical Analysis, **41**, no.4, 1295-1322, 2009.

11. Stochastic parabolic equations of full second order (with S. Lototsky). Book chapter in *"Topics in Stochastic Analysis and Nonparametric Estimation* " (Ed. P.- L. Chow et al.). 199--210, The IMA Volumes in Mathematics and its Applications, Springer, 2007.

12. Wiener chaos solutions of linear stochastic evolution equations (with S. Lototsky). *Annals. of Prob.*, **34** (2006), no. 2, 638--662.

13. Wiener chaos expansions and numerical solutions of randomly forced equations of fluid mechanics (with T. How et al.), *J. Comput. Phys.* **216** (2006), no. 2, 687--706.

14. Stochastic differential equations: A Wiener chaos approach (with S. Lototsky). Book chapter in *" From Stochastic Calculus to Mathematical Finance* " (Ed. Y. Kabanov et al.). 433--506, Springer, Berlin, 2006

15. Strong solutions of stochastic generalized porous media equations: Existence, uniqueness and ergodicity. (with G. Da Prato et al.) *Comm. Partial Dif. Eq.*, **31** (2006), no. 1-3, 277--291.

16. A novel approach to detection of intrusions in computer networks via adaptive sequential and batch-sequential change-point detection methods (with R. Blazek et al.*), IEEE Transactions on Signal Processing*, **54**, (2006) no. 9, 3372--3382.

17. Detection of intrusions in information systems by sequential change-point methods (with A. Tartakovsky et al.). *Statistical Methodology*, **3** (2006), no. 3, 252--293.

18. Detection of intrusions in information systems by sequential change-point methods. Authors' response (with A. Tartakovsky et al. *Stat. Methodol.* **3** (2006), no. 3, 329--340

19. A filtering approach to tracking volatility from prices observed at random times (with J. Cvitanic et al). *Annals of Applied Prob*, **16** (2006), no. 3, 1633—1652

20. Numerical estimation of volatility values from discretely observed diffusion data. (with J. Cvitanic and Il. Zalyapin) *J. Comp. Finance*, **9** (2006), no. 4,1-36

21. Global L_2-solutions of stochastic Navier-Stokes equations (with R. Mikulevicius). *Annals of Prob*., **33** (2005), No. 1, 137-176

22. A nonparametric multichart CUSUM test for rapid detection of DOS attacks in computer networks." *International Journal of Computing and Information Science*, **2** (2004), no. 3, 149--158.

23. Passive Scalar Equation in a Turbulent Incompressible Gaussian Velocity Field (with S. Lototsky), *Russian. Math. Surveys*. **59** (2004), No.2, 297--312

24. Stochastic Navier-Stokes equations for turbulent flows (with R. Mikulevicius). *SIAM J. Math. Anal.* **35** (2004), No. 5, 1250-1310.

25. A diffusion model of roundtrip time (with S. Bohacek). *Computational Statistics and Data Analysis, Computational Statistics and Data Analysis*, vol**. 45** (2004) no. 1, 25-50.

26. On martingale problem solutions for stochastic Navier-Stokes equations (with R. Mikulevicius). In *Stochastic partial differential equations and applications*, ed. G. Da Prato and L. Tubaro. Lecture Notes in Pure and Applied Mathematics Series 227. New York: Marcel Dekker, 2002.

27. A note on Krylov's -theory for systems of SPDEs (with R. Mikulevicius). *Electron. J. Probab.* **6**, no. 12 (2001): 1•35. Lp

28. On equations of stochastic fluid mechanics (with R. Mikulevicius). In *Stochastics in finite and infinite dimensions: in honor of Gopinath Kallianpur*, ed. T. Hida et al., 285•302. Trends Math. Boston: Birkhauser, 2001.

29. Stochastic Navier-Stokes equations: propagation of chaos and statistical moments (with R. Mikulevicius). In *Optimal control and partial differential equations: in honor of Professor Alain Bensoussan*, ed. J. L. Menaldi et al., 258•267. Amsterdam: IOS Press, 2001.

30. Approximation of the Kushner equation of nonlinear filtering (with K. Ito). *SIAM J. Control Optim.* **38**, no. 3 (2000): 893•915.

31. Parameter estimation for stochastic evolution equations with non-commuting operators (with S. Lototsky). In *Skorokhod's ideas in probability theory*, ed. V. Korolyuk, N. Portenko, and H. Syta, 271•280. Kiev: Institute of Mathematics of the National Academy of Sciences of Ukraine, 2000.

32. Fourier-Hermite expansions for nonlinear filtering (with R. Mikulevicius). *Teor. Veroyatnost. i Primenen*. **44**, no. 3 (1999): 675•680. Translation in *Theory Probab. Appl*. **44**, no. 3 (2000): 606•612.

33. Spectral asymptotics of some functionals arising in statistical inference for SPDE's (with S. Lototsky). *Stochastic Process. Appl*. **79**, no. 1 (1999): 69•94.

34. Recursive nonlinear filter for a continuous-discrete time model (with S. Lototsky). *IEEE Trans. Automatic Cont.* **48**, no. 8 (1998): 1154•58.

35. Martingale problems for stochastic PDE's (with R. Mikulevicius). In *Stochastic partial differential equations: six perspectives*, ed. R. Carmona and B. L. Rozovskii, 243•325. Mathematical Surveys and Monographs Series **64**. Providence, RI: American Mathematical Society, 1998.

36. Normalized stochastic integrals in topological vector spaces (with R. Mikulevicius). In *S■minaire de Probabilit■s XXXII*, 137•165. Lecture Notes in Math. **1686**. Berlin: Springer-Verlag, 1998.

37. Linear parabolic stochastic PDE's and Wiener chaos (with R. Mikulevicius). *SIAM J. Math. Anal.* **29**, no. 2 (1998): 452•480.

38. Weighted stochastic Sobolev spaces and bilinear SPDE's driven by space-time white noise (with D. Nualart). *J. Funct. Anal*. **149**, no. 1 (1997): 200•225.

39. On asymptotic problems of parameter estimation in stochastic PDE's: discrete time sampling (with L. Piterbarg). *Math. Methods Statist.* **6**, no. 2 (1997): 200•223.

40. Nonlinear filtering revisited: a spectral approach (with S. Lototsky and R. Mikulevicius). *SIAM J. Control Optim.* **35**, no. 2 (1997): 435•461.

41. On asymptotic properties of an approximate maximum likelihood estimator for stochastic PDEs (with M. Huebner and S. Lototsky). In *Statistics and control of stochastic processes. The Liptser festschrift: papers from the Steklov Seminar (Moscow, 1995/1996)*, ed. Yu. M. Kabanov, B. L. Rozovskii, and A. N. Shiryaev, 139•155. River Edge, NJ: World Scientific, 1997.

42. Recursive multiple Wiener integral expansion for nonlinear filtering of diffusion processes (with S. Lototsky). In *Stochastic processes and functional analysis*, ed. J. Goldstein et al., 199•208. Lecture Notes in Pure and App. Math **186**. New York: Marcel Dekker, 1997.

43. Maximum likelihood estimators in the equations of physical oceanography (with L. Piterbarg). In *Stochastic modelling in oceanography*, ed. R. Adler et al., 397•421. Progress in Probability **39**. Boston: Birkhauser, 1996.

44. On asymptotic properties of maximum likelihood estimators for parabolic stochastic PDE's (with M. Huebner). *Probab. Theory Related Fields* **103**, no. 2 (1995): 143•163.

45. On stochastic integrals in topological vector spaces (with R. Mikulevicius). *Stochastic analysis (Ithaca, NY, 1993)*, 593•602. Proc. Sympos. Pure Math. 57. Providence, RI: American Mathematics Society, 1995.

46. Estimates of turbulent parameters from Lagrangian data using a stochastic particle model (with A. Griffa et al.). *Journal of Mar. Res.* **53**, no. 3 (1995): 371•401.

47. Statistics and physical oceanography (with A. Griffa et al.). *Stat. Sci.* **9**, no. 2 (1994): 167•201.

48. Uniqueness and absolute continuity of weak solutions for parabolic SPDE's (with R. Mikulevicius). *Acta Appl. Math.* **35**, no. 1-2 (1994): 179•192.

49. Soft solutions of linear parabolic SPDE's and the Wiener chaos expansion (with R. Mikulevicius). In *Stochastic analysis on infinite-dimensional spaces*, ed. H. Kunita and H.-H. Kuo, 211•220. Pitman Res. Notes Math. Ser. **310**. Baton Rouge, LA: Longman Sci. Tech, Harlow, 1994.

50. Kinematic dynamo and intermittence in a turbulent flow. Magnetohydrodynamic stability and dynamos (with P. Baxendale). *Geophys. Astrophys. Fluid Dynam.* **73**, no. 1-4 (1993): 33•60.

51. Two examples of parameter estimation for stochastic partial differential equations (with M. Huebner and R. Khasminskii). In *Stochastic processes. A festschrift in honor of Gopinath Kallianpur*, 149•160. New York: Springer-Verlag, 1993.

52. Some results on a diffusion approximation to the induction equation. In *Stochastic partial differential equations and applications (Trento, 1990)*, ed. G. Da Prato and L. Tubaro, 268•81. Pitman Res. Notes in Math. Ser. **268**. Baton Rouge, LA: Longman Sci. Tech, Harlow, 1992.

53. A simple proof of uniqueness for Kushner and Zakai equations. In *Stochastic analysis*, ed. E. Mayer-Wolf, 449•58. Boston: Academic Press, 1991.

54. Measure-valued solutions of second-order stochastic parabolic equations (with O.G. Purtukhiya) (in Russian). In *Statistics and control of random processes*, ed. A. N. Shiryaev, 177•79. Moscow: "Nauka," 1989.

55. On the mathematical theory of a hydromagnetic dynamo in a random flow (in Russian). *Dokl. Akad. Nauk SSSR* **293**, no. 6 (1987): 1311•1314.

56. On the statistic estimation of reliability of determining aqueous solution pH by acid-base indicator paper (with V.M. Ostrovskaja et al.) (in Russian). *J. of Analit. Chem. USSR Acad. of Sci.* **V(XLII)**, 1987.

57. Nonnegative L_{1}-solutions of second order stochastic parabolic equations with random coefficients. In *Statistics and control of stochastic processes:papers from the Steklov Seminar (Moscow, 1984)*, ed. N. V. Krylov, R. S. Liptser, and A. A. Novikov, 410•427. Translation Series in Math and Engineering. New York: Optimization Software, 1985.

58. Filtering interpolation and extrapolation of degenerate diffusion processes. Backward equations (in Russian). *Teor. Veroyatnost. i Primenen* **28**, no. 4 (1983): 725•737.

59. Stochastic partial differential equations and diffusion processes (with N. V. Krylov)(in Russian). *Uspekhi Mat. Nauk* **37**, no. 6 (1982): 75•95.

60. Characteristics of second-order degenerate parabolic Ito equations (with N. V. Krylov)(in Russian). *Trudy Sem. Petrovsk.* **8** (1982): 153•168.

61. Smoothness of solutions of stochastic evolution equations and the existence of a filtering transition density (with A. Shimizu). *Nagoya Math. J.* **84** (1981): 195•208.

62. On the first integrals and Liouville equations for diffusion processes (with N. V. Krylov). In *Stochastic differential systems (Visegrad, 1980)*, 117•125. Lecture Notes in Control and Information Sci. **36**. New York: Springer-Verlag, 1981.

63. On the total integral of Ito equations (with N.V. Krylov). *Russian Math. Surveys (UMN)* **4**: 1980.

64. A note on the strong solutions of stochastic differential equations with random coefficients. In *Stochastic differential systems. Proceedings of the IFIP-WG 7/1 Working Conference (Vilnius, Lithuania, 1978)*, 287•296. Lecture Notes in Control and Information Sci. **25**. New York: Springer-Verlag, 1980.

65. Conditional distributions of degenerate diffusion processes (in Russian). *Teor. Veroyatnost. i Primenen.* **25**, no. 1 (1980): 149•154.

66. Ito equations in Banach spaces and strongly parabolic stochastic partial differential equations (with N. V. Krylov)(in Russian). *Dokl. Akad. Nauk SSSR* **249**, no. 2 (1979): 285•289.

67. Stochastic evolution equations (with N. V. Krylov)(in Russian), 71•147. Current Problems in Mathematics **14**, 71•147. Moscow: Akad. Nauk SSSR, Vsesoyuz. Inst. Nauchn. i Tekhn. Informatsii, 1979.

Translated into the English: J. Soviet Math. Vol. 16, No 4, 1981, pp 1233-1277

68. Fundamental solutions of stochastic partial differential equations and the filtering of diffusion processes (with L. G. Margulis)(in Russian). *Uspekhi Mat. Nauk* **33**, no. 2 (1978): 197.

69. Conditional distributions of diffusion processes (with N. V. Krylov)(in Russian). *Izv. Akad. Nauk SSR Ser. Mat.* **42**, no. 2 (1978): 356•378.

70. The Cauchy problem for linear stochastic partial differential equations (with N. V. Krylov)(in Russian). *Izv. Akad. Nauk SSR Ser. Mat.* **41**, no. 6 (1977): 1329•1347.

71. Stochastic partial differential equations (in Russian). *(Mat. Sb. (N.S.))* **96**, no. 138 (1975): 314•341.

72. Stochastic differential equations in infinite-dimensional spaces and filtering problems (in Russian). In *Proceedings of the School and Seminar on the Theory of Random Processes (Druskininkai, 1974), Part II*, 147•194. Vilnius: *Inst. Fiz. i Mat. Akad. Nauk Litovsk. SSR*, 1975.

73. The Ito-Wentzell formula (in Russian). *Vestnik Moskov. Univ. Ser. i Mat. Meh.* **28**, no.1 (1973): 26•32.

74. On infinite systems of stochastic differential equations that arise in the theory of optimal nonlinear filtering (with A.N. Shiryaev)(in Russian). *Teor. Verojatnost. i Primenen.* **17** (1972): 228•237.

75. Stochastic partial differential equations that arise in nonlinear filtering problems (in Russian). *Uspekhi Mat. Nauk* **27**, no. 3 (1972): 213•214.

76. The problem of "disorder" for a Poisson process (with L. I. Galtchuk) (in Russian). *Teor. Verojatnost. i Primenen.* **16** (1971): 729•734.

Selected Conference Proceedings

77. A nonparametric multichart CUSUM test for rapid intrusion (with K. Shah et al.) *JSM Proceedings (CD Rom).* Minneapolis, MN, 7-11 August, 2005.

78. Wiener chaos expansions and numerical solutions of randomly forced equations of fluid dynamics (with T. How et al.), Proceedings of the Sixth Helenic-European Conference on Computer Mathematics and its Applications, HERCMA 2003, Vol. 1, E. A. Lipitakis Editor, pp. 12-22.

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