# VLADIMIR P. KURENOK

## Curriculum Vitae

## EDUCATION

PhD: Belarus State University, Minsk, 1991

BS/MS: Friedrich-Schiller-University, Germany, 1986

## POSTDOCTORAL EXPERIENCE

DAAD (German Academic Exchange Service) Scholarship: Ruhr-University Bochum, Germany, 1993-1994

## EMPLOYMENT

Washington University in St Louis, School of Engineering and Applied Science, Department of Electrical and Systems Engineering, Lecturer, 2011 - present

University of Missouri-St. Louis, Department of Mathematics and Computer Science, Adjunct Professor of Mathematics, Spring semester 2011

University of Wisconsin-Green Bay, Natural and Applied Sciences, Assistant Professor of Mathematics (2003-2009), Associate Professor of Mathematics **with tenure** 2009 – 2012 (on leave of absence)

Washington University in St. Louis, School of Engineering and Applied Science, Department of Systems Science and Mathematics, Adjunct Professor of Mathematics, 2002-2003, summer 2006

University of Missouri-St. Louis, Department of Mathematics and Computer Science, Adjunct Professor of Mathematics, 2002-2003

St. Louis University, Department of Mathematics and Mathematical Computer Science, Adjunct Assistant Professor of Mathematics, 2002-2003

Maryville University of St. Louis, School of Liberal Arts and Professional Programs, Adjunct Assistant Professor of Mathematics, 2001

Belarus State University, Minsk, Department of Mathematics and Mechanics, Dozent (equivalent to Associated Professor **with tenure**), 1998-2001; Assistant Professor of Mathematics, 1994-1998; Research Associate, 1990-1994

## SCHOLARSHIP

### Submitted for publication:

V. P. Kurenok, On some integral estimates for solutions of stochastic differential equations driven by symmetric stable processes, to *Latin American Journal of Probability and Statistics.*

H. J. Engelbert and V.P. Kurenok, Tanaka-type formulas for symmetric stable processes, to *Stochastics*

### Publications (in referred journals):

26. V.P. Kurenok, On stochastic equations with measurable coefficients driven by symmetric stable processes, ***Int. J. Stoch. Anal***., 2012, 1-17.

25. V.P. Kurenok, Time change method and SDEs with nonnegative drift, ***Canadian Mathematical Bulletin***, Vol. 53(3) (2010), pp. 503-515.

24. V.P. Kurenok, On degenerate stochastic equations of It´o type with jumps, ***Statistics and Probability Letters***, Vol. 78 (2008), 2917-2925.

23. V.P. Kurenok, On driftless one-dimensional SDEs with respect to stable Levy processes, ***Lithuanian Mathematical Journal***, Vol. 47 (2007), No. 4, 423-435.

22. V.P. Kurenok, Stochastic equations driven by a Cauchy process, ***IMS Collections*** *"Markov Processes and Related Topics: A Festschrift for Thomas G. Kurtz"*, Vol. 4 (2008), 99-106.

21. V.P. Kurenok, On a model of term structure of interest rate processes of stable type, New ***Zealand Journal of Mathematic****s*, Vol. 38 (2008), pp. 149-160.

20. V.P. Kurenok and A.N. Lepeyev, On multidimensional SDEs with locally integrable coefficients, ***Rocky Mountain Journal of Mathematics***, Vol. 38 (2008), No. 1, 139-174.

19. V.P. Kurenok, A note on L2-estimates for stable integrals with drift, ***Transactions of AMS***, Vol. 300 (2008), No. 2, 925-938.

18. V.P. Kurenok, Stochastic equations with time-dependent drift driven by Levy processes, ***Journal of Theoretical Probability***, Vol. 20 (2007), No. 4, 859-869.

17. V.P. Kurenok, Stochastic equations with miltidimensional drift driven by Levy processes, ***Random Operators and Stochastic Equations***, Vol. 14 (2006), No. 4, 311-324.

16. H.J. Engelbert, V.P. Kurenok and A. Zalinescu, On existence and uniqueness of reflected

solutions of stochastic equations driven by symmetric stable processes, In:"***From Stochastic Calculus to Mathematical Finance", The Shiryaev Festschrift***, Springer Verlag, 2006, 227-249.

15. V.P. Kurenok and A.N. Lepeyev, Multidimensional SDEs with unbounded drift, ***Proceedings of the Academy of Sciences of Belarus***, Vol. 12 (2004), 107-110.

14. V.P. Kurenok and H.J. Engelbert, On one-dimensional stochastic equations driven by symmetric stable processes, Series Stochastic Monographs, Volume 12, ***Stochastic Processes and Related Topics,*** edited by R. Buckdahn, H.J.Engelbert, and M.Yor, Taylor and Francis, London and New York, 2002, 81-110.

12. V.P. Kurenok, Existence of solutions of stochastic equations driven by stable Levy processes, ***Reports of the Academy of Sciences of Belarus***, No. 1, 2001, 63-68.

13. V.P. Kurenok and H.J. Engelbert, On multidimensional SDE's without drift and with time-dependent diffusion matrix, ***Georgian Mathematical Journal***, Vol. 7 (2000), No. 4, 643-664.

11. V.P. Kurenok, On the "zero-one law" of the integral functionals of quasi-stable processes, ***Proceedings of the Academy of Sciences of Belarus***, Vol. 44 (2000), No. 3, 33-36.

10. V.P. Kurenok, On weak convergence of random walks to symmetric stable processes, **Proceedings of the international conference AMADE**, Minsk, Institute of Mathematics of the Academy of Sciences of Belarus, Vol. 6 (2000), 109-112.

9. V.P. Kurenok, On the existence of global solutions of stochastic differential equations with time-dependent coefficients, ***Proceedings of the Academy of Sciences of Belarus***, Vol. 44 (2000), No. 1, 30-34.

8. V.P. Kurenok, On multidimensional stochastic differential equations driven by Brownian motion, **Proceedings of the international conference "Dynamical Systems: Stability, Control, Optimization"**, Minsk, Vol. 2 (1998), 168-170.

7. V.P. Kurenok, On the representation property of some diffusion processes, "**Operators and Operator Equations",** Novocherkask, 1995, 39-44.

6. V.P. Kurenok, On weak solutions of SDE's with singular diffusion coefficient, **Proceedings of the conference "Modern Problems of Informatics**", Minsk, 1990, 78-79.

5. V.P. Kurenok, On some properties of solutions of stochastic differential equations with special diffusion coefficient, ***Reports of the Academy of Sciences of Belarus***, 1990, Dep. 31.01.90, No. 602-B90, pp. 1-16.

4. V.P. Kurenok, Existence of solutions of stochastic differential equations without drift by local integrability of the coefficient a-2, ***Vestnik of Belarus State University***, *Ser. 1*, 1990, No. 1, 43-46.

3. V.P. Kurenok, On the existence of solutions of one-dimensional stochastic differential equations, ***Reports of the Academy of Sciences of Belarus***, 1989, No. 4, 38-43.

2. V.P. Kurenok, On the classification of solutions of stochastic differential equations with a special diffusion coefficient, ***Vestnik of Belarus State University***, *Ser. 1*, 1989, No. 1, 64-66.

1. V.P. Kurenok, On the existence of solutions of multidimensional stochastic differential equations, ***Reports of the Academy of Sciences of Belarus***, Dep. 11.04.88, No. 2686-B88, 1988, pp.1-16.

***Technical reports and other publications:***

1. Kurenok V.P**.** *Krylov's estimates for Levy processes of jump type and some applications***,** Abstracts of Reports of the International Conference "Analytic Methods of Analysis and Differential Equations", 13-19th September 2006, Minsk, Belarus, p. 71.

2. Kurenok V. P. and Lepeyev A. N. *On Solutions of Multidimensional SDEs with Locally Integrable Coefficients***, Abstracts** of the International Conference I, Modern Problems and New Trends in Probability Theory", Ukraine, Chernivtsi, June 19-26, 2005, p. 136-137.

3. H.J. Engelbert, V.P. Kurenok and A. Zalinescu, On reflected solutions of stochastic equations driven by symmetric stable processes, Preprint (2004) Math/Inf/07/04, University of Jena, pp. 1-18.

4. H.J. Engelbert and V.P. Kurenok,"On one-dimensional stochastic equations driven by symmetric stable processes, Preprint (2000) Math/Inf/00/14, University of Jena, pp.1-28.

5. V.P. Kurenok, On a model for the term structure of interest rate processes of stable type, published in electronic form in the Proceedings of the 8th Symposium on Finance, Banking and Insurance, Karlsruhe, Germany, 1999, pp.1-12 (http://citeseer.nj.nec.com).

6. S. Albeverio and V.P. Kurenok, On multidimensional stochastic differential equations with time-dependent coefficients, SFB 237, Preprint No. 221 (1994).

7. E. Krushevski and V.P. Kurenok, On some functional equations arising in the queuing theory, SFB 237, Preprint No. 223 (1994).

8. V.P. Kurenok, On solutions of stochastic differential equations with singular coefficients, Ph. D. Thesis, 1991, pp. 1-128 (in Russian).

***Teaching publications at Belarus State University:***

1. Introduction to Stochastic Analysis. The Martingale Approach, published by Eridan, Minsk, 2000 (in Russian).

2. Elements of the General Theory of Stochastic Processes, published by Eridan, Minsk, 2000 (in Russian).

3. (joint with A.V. Lebedev, J.V.Lysenko, and O. N. Sorokoletova) Extreme Problems of Graph Theory, published by Belarus State University, Minsk, 2000, 64 pages (in Russian).

***Invited talks (last 10 years):***

"On some integral estimates for solutions of SDEs driven by symmetric stable processes", International workshop on Stochastic Analysis, Controlled Dynamical Systems and Applications, March 9-13, 2015, Jena, Germany

"Existence and uniqueness of solutions for SDEs associated with the fractional Laplacian", "5th International Conference on Differential Equations and Dynamical Systems", University of Texas-Pan American, December 16-18, 2006

"On Krylov's estimates for Levy processes and their applications to SDEs", "Asymptotic Analysis in Stochastic Processes, Nonparametric Estimation, and Related Problems", conference in honor of Rafail Z. Khasminskii on the occasion of his 75th birthday, Wayne State University in Detroit, September 15-17, 2006

"On L2-estimates of stable integrals with drift", Conference on Markov Processes and Related Topics in honor of Tom Kurtz on the occasion of his 65th birthday, University of Wisconsin-Madison, July 10-13, 2006

"On reflected solutions of stochastic equations driven by symmetric stable processes", Conference on Martingales, Potential Theory and Stochastic Analysis, University of Florida in Gainesville, November 10-12, 2005

"On multidimensional SDE's with locally integrable coefficients", Conference on Stochastic Control and Numerics, University of Wisconsin-Milwakee, September 15-17, 2005

"On existence and uniqueness of reflected solutions of stochastic equations driven by symmetric stable processes", University of Wisconsin-Madison, Department of Mathematics, September 2004

"On a model for the term structure of interest rate processes of stable type", IMA Workshop "Financial Data Analysis and Applications", University of Minnesota, Minneapolis, May 2004

**Conferences and seminar participation (last 10 years):**

Twenty-Eight Midwest Probability Colloquium, October 20-21, 2006, Northwestern University in Evanston, IL

Seminar "Eigenvalues and singular values of random matrices: theory and applications", Department of Electrical and Systems Engineering, Washington University in St. Louis, August 17, 2006

Twenty-Seventh Midwest Probability Colloquium, October 21-22, 2005, Northwestern University in Evanston, IL

Conference on Stochastic Control and Numerics, September 15-17, 2005, University of Wisconsin-Milwakee

Conference on Probability, Financial Derivatives, and Asset Pricing, July 10-13, 2005, University of Virginia

Twenty-Sixth Midwest Probability Colloquium, October 14-16, 2004, Northwestern University in Evanston, IL

IMA Workshop "Financial Data Analysis and Applications", May 24-28, 2004, University of Minnesota, Minneapolis

University of Wisconsin-Madison, Department of Mathematics, April 2004

Fifty-Second Midwest Conference in Partial Differential Equations, November 15-16, 2003, School of Mathematics, University of Minnesota, Minneapolis

Twenty-Fifth Midwest Probability Colloquium, October 16-18, 2003, Northwestern University in Evanston, IL

**Reviewing activities:**

A reviewer for **Stochastics**, ***Statistics and Probability Letters***, ***Annals of the Institute of A. Poincare***, ***Journal of Environmental Informatics***

A reviewer for MR (Mathematical Reviews) by AMS (American Mathematical Society) since 2007; to date wrote reviews for 17 papers

Reviewed the book "*Theory of Probability and Random Processes*" by Leonid B. Koralov and Yakov G. Sinai, 2007, Springer

Reviewed the book "Stochastik: Einfuehrung in die Wahrscheinlichkeitstheorie und

Statistik" by Hans-Otto Georgii, 2007, Walter de Gruyter

**Ph.D. students:**

Andrei Lepeyev (Belarus State University, joint comentoring with Prof. N. Lazakovich) "On Stochastic Differential Equations and Inclusions", has successfully defended the Ph.D. Thesis on February 17, 2006

**Research grants:**

Release time grant, WISYS Technology Foundation, $3,500 (2008)

Aid-in-Research grant, UWGB, $300 (2006)

Travel grant – University of Delaware, NSF, $500 (2008)

Travel grant – Columbia University, NSF, $700 (2006)

Travel grant – Wayne State University, NSF, $900 (2006)

Travel grant – University of Wisconsin, NSF, $700 (2006)

Travel grant – University of Florida, NSF, $500 (2005)

Travel grant – University of Wisconsin-Milwaukee, NSF, $500 (2005)

Travel grant – Illinois Institute of Technology, NSF, $800 (2003)

**Other related scholarship:**

Providing the support with data analysis in the paper "Mitochondrial localization of p53 during adenovirus infection and regulation of its activity by E1B-19K" (authors: Elena Lomonosova, T. Tubramanian and G. Chinnadurai), published in Oncogene, 2005, 24(45):6796-808 (my name is mentioned in Acknowledgement part of the paper)

Providing of mathematical support for a biological project "Molecular and Genetic Determinants of Rous Sarcoma Virus Integrase for Concerted DNA Integration" (authors: Roger Chui and Duane P. Grandgenett) published in Journal of Virology, Vol. 77, No. 11, pp. 6482-6492(2003) (my name is mentioned in Acknowledgement part of the paper)

Providing of statistical support (data analysis) for the project "Mitochondrial localization of p53 during adenovirus infection and regulation of its activity by E1B-9K" (authors: Elena Lomonosova, T.Subramanian and G. Chinnadurai) published in Oncogene; advanced online publication: 10.1038/sj.onc.1208836 (my name is

mentioned in Acknowledgement of the paper)

**Research interests:**

stochastic analysis and ordinary stochastic differential equations
Levy processes
statistics
actuarial and financial mathematics

## TEACHING

**Summary of teaching:** Since beginning my teaching career in 1990, I have taught more than 40 different courses at various universities to students with different backgrounds and various levels of preparation. I consider teaching as the primary responsibility of my profession and my qualification as a mathematician.

**Teaching experience:**

*Washington University in St. Louis:*

- Introductory Statistics (University College, 2003)
- Random Variables and Stochastic Processes I (SSM department, 2002)
- Random Variables and Stochastic Processes II (SSM department, 2003)
- Matrix Algebra ESE 309
- Engineering Mathematics B ESE 319
- Optimization ESE 415
- Financial Mathematics ESE 427
- Probability and Statistics for Engineers ESE 326
- Mathematics of Modern Engineering I ESE 501
- Mathematics of Modern Engineering II ESE 502
- Probability and Stochastic processes ESE 520

*University of Wisconsin-Green Bay:*

- Introductory Statistics
- Theory of Probability
- Mathematical Statistics
- Applied Regression Analysis
- Design of Experiments
- Calculus and Analytic Geometry I
- Calculus and Analytic Geometry II
- Multivariate Calculus
- Ordinary Differential Equations
- Analysis I

- Analysis II

*University of Missouri-St. Louis:*

- Applied Statistics I (calculus based)
- Calculus and Analytic Geometry I
- Calculus and Analytic Geometry II
- Calculus and Analytic Geometry III
- Linear Algebra
- Introduction to Differential Equations
- Discrete Structures
- Basic Calculus
- Mathematical Statistics

*St. Louis University:*

- Survey of Calculus (using a graphing calculator)

*Maryville University in St. Louis:*

- Applied Linear Algebra (for actuarial science students)
- Intermediate Algebra

*Belarus State University:*

- Elementary Probability Theory
- Probability Theory and Introduction to Stochastic Processes (undergraduate course for mathematics mayor students only, measure theory based, with proofs)
- Mathematical Statistics
- Operations Research (upper undergraduate level)
- Linear Stochastic Filtering
- A Course of Stochastic Processes (graduate level)
- Theory of Martingales (graduate level)
- Stochastic Integration and Introduction to Stochastic Analysis (graduate level)
- Elements of Queuing Theory (graduate level)
- Introduction to Actuarial Mathematics
- Mathematical Models of Risk Theory
- Discrete Models of Financial Mathematics (graduate level)
- Linear Algebra and Geometry