

Curriculum Vitae

Roman Kozlov

Personal information

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Date of Birth: January 15, 1971
Nationality: Russian

Academic qualifications

Doctor Ingeniør (Ph.D.) degree in mathematics (thesis title: Symmetry applications to difference and differential-difference equations), Norwegian University of Science and Technology, Trondheim, Norway, 2001.

Master of Science with distinction in Mathematical and Computational Methods, Moscow Institute of Physics and Technology, Moscow, Russia, 1994.

Professional history chart

Professor, Department of Business and Management Science, Norwegian School of Economics, Bergen, Norway, from September 2011.

Associate Professor, Department of Finance and Management Science, Norwegian School of Economics, Bergen, Norway, January 2009 – September 2011.

Postdoc, Department of Mathematics, University of Bergen, Bergen, Norway, August 2005 – December 2008.

Research interests

- Numerical simulation of different phenomena, including nonlinear processes.
- Geometric integration and structure-preserving numerical methods (numerical algorithms which preserve symplectic structure, conservation laws, constraints, attractors, etc.)

- Robust numerical methods for partial differential equations; in particular, moving mesh methods.
- Constructing new branches of group analysis connected with group theoretical methods for stochastic and discrete equations.
- Extensive experience in using modern group analysis (Lie and Lie–Bäcklund transformation groups) for constructing invariant solutions, conservation laws, etc.

Teaching

At Norwegian School of Economics I lectured

- MAT010 (MAT10) Analysis and linear algebra, spring 2010 - 2016;
- MAT011 Difference and differential equations with stability analysis of dynamical systems, fall 2010 - 2014;
- MAT015 Mathematical analysis and differential equations, spring 2009, 2010;
- MAT016 (MAT13) Optimization, spring 2015, 2016.

At University of Bergen I lectured the following courses:

- MAT111 Calculus I, spring 2006, 2008;
- MAT252 Continuum mechanics (part of the course), spring 2007;
- MAT234 Partial Differential Equations (part of the course), fall 2008.

Research projects participation

- Symmetries in Numerical Solutions of Ordinary Differential Equations (1997–2000), supported by NFR.
- Robust Numerical Methods for Partial Differential Equations (2002–2004), supported by NFR.
- Structure Preserving Algorithms for Differential Equations; Application, Computation, Education (2007–2012), supported by NFR.
- Analysis and geometry on non-holonomic manifolds with non-degenerate metrics, (2011–2014), supported by NFR.

Publications (from 2007)

Refereed journal papers

1. V. Dorodnitsyn, E. Kaptsov, R. Kozlov and P. Winternitz, The adjoint equation method for constructing first integrals of difference equations, *J. Phys. A: Math. Theor.* **48**, 055202, 2015.
2. P. Winternitz, V. Dorodnitsyn, E. Kaptsov and R. Kozlov, First integrals of difference equations which do not possess a variational formulation, *Doklady Mathematics* **89** (1), 106–109, 2014.
3. R. Kozlov, On symmetries of the Fokker–Planck equation, *J. Engrg. Math.* **82** (1), 39–57, 2013.
4. R. Kozlov, On symmetries of stochastic differential equations, *Communications in Nonlinear Science and Numerical Simulation* **17** (12), 4947–4951, 2012.
5. R. Kozlov, Sparse spectral discretizations for some parabolic PDEs, *Analysis and Mathematical Physics* **2**(4), 439–446, 2012.
6. R. Kozlov, On Lie group classification of a scalar stochastic differential equation, *J. Nonlinear Math. Phys.*, **18**, supplement 1, 177–187, 2011.
7. R. Kozlov, On maximal Lie point symmetry groups admitted by scalar stochastic differential equations, *J. Phys. A* **44** (2011), no. 20, 205202.
8. R. Kozlov, Symmetries of systems of stochastic differential equations with diffusion matrices of full rank, *J. Phys. A* **43** (2010) 245201.
9. V. Dorodnitsyn and R. Kozlov, Invariance and first integrals of continuous and discrete Hamiltonian equations, *J. Engrg. Math.* **66** (2010), no. 1-3, 253270.
10. R. Kozlov, The group classification of a scalar stochastic differential equation, *J. Phys. A* **43** (2010), no. 5, 055202.
11. V. Dorodnitsyn and R. Kozlov, First integrals of difference Hamiltonian equations, *J. Phys. A* **42** (2009), no. 45, 454007.
12. R. Kozlov, Exponential splitting time integration for pseudospectral methods on moving meshes, *J. Comput. Appl. Math.* **228** (2009), no. 1, 56–69.
13. R. Kozlov, High-order conservative discretizations for some cases of the rigid body motion, *Phys. Lett. A* **373** (2008), no. 1, 23–29.

14. R.Kozlov, Exponential operator splitting time integration for spectral methods, *J. Comput. and Appl. Math.*, **222** (2008), no. 2, 592–607.
15. R.Kozlov, A conservative discretization of the Kepler problem based on the L -transformations, *Physics Letters A*, **369** (2007), no. 4, 262–273.
16. R.Kozlov, Conservative discretizations of the Kepler motion, *J. Phys. A* **40** (2007), no. 17, 4529–4539.

Book chapter

1. V.Dorodnitsyn and R.Kozlov, Lagrangian and Hamiltonian formalism for discrete equations: symmetries and first integrals, in D.Levi, P.Olver, Z.Thomova and P.Winternitz, editors, *Symmetries and Integrability of Difference Equations* (London Mathematical Society Lecture Note Series **381**), 7–49, Cambridge University Press, UK, 2011.

Conference proceedings

1. R. Kozlov, On first integrals of ODEs admitting lambda-symmetries, *AIP Conference Proceedings* **1648**, 430005, 2015.
2. E. Celledoni, R. Kozlov and T. Matsuo, Preface of the "Symposium on Structure-Preserving Integrators for Differential Equations" *AIP Conference Proceedings* **1648**, 180001, 2015
3. R.Kozlov, On first integrals of discrete equations with symmetries, *AIP Conference Proceedings* **1558**, 475–477, 2013.
4. R.Kozlov, On conservative discretization of the Kepler problem, *AIP Conference Proceedings* **1479**, 1299–1302, 2012.
5. R.Kozlov, First integrals of discrete Hamiltonian equations, *AIP Conference Proceedings* **1389**, 490–493, 2011.