

Personal Information

Work address: Department of Mathematics
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Research interests

Differential Algebra, Symbolic Computation

Education

Ph.D. May 2008, Moscow State University, Department of Mechanics and Mathematics
 “*Algorithmic Methods in Differential Ideal Theory*”
 Advisor: Eugeny Pankratiev

Ph.D. May 2007, North Carolina State University, Department of Mathematics
 “*Tannakian Categories and Linear Differential Algebraic Groups*”
 Advisor: Michael Singer

M.S. December 2005, North Carolina State University, Department of Mathematics
 Advisor: Michael Singer

Diploma with honors in Mathematics and Applied Mathematics, June 2004
 Moscow State University, Department of Mechanics and Mathematics
 Advisor: Eugeny Pankratiev

Research grants

2010–2015 National Science Foundation, CCF–0952591, “CAREER: Computational Differential Algebra”

2009–2010 National Science Foundation, CCF–0901175, “Computational Methods for Systems of Difference Equations”

Professional history

Sep 2009 – present Assistant Professor, Department of Mathematics
 City University of New York, Queens College

Aug 2007 – Aug 2009 Research Assistant Professor, Department of Mathematics
 University of Illinois at Chicago

Aug 2004 – May 2007 Graduate Research and Teaching Assistant, Department of Mathematics
 North Carolina State University

Sep 1999 – May 2001 Instructor for high-school advanced studies in Mathematics,
 Department of Mechanics and Mathematics Moscow State University

Seminars organized

Aug 2009 – present Kolchin Seminar in Differential Algebra at the Graduate Center of CUNY

Peer-reviewed journal publications

- 2009
 1. O. Golubitsky, M.V. Kondratieva, A. Ovchinnikov, and A. Szanto, *A Bound for Orders in Differential Nullstellensatz*, Journal of Algebra **322** (11) (2009) 3852–3877.
 2. A. Ovchinnikov, *Differential Tannakian Categories*, Journal of Algebra **321** (10) (2009) 3043–3062.
 3. A. Ovchinnikov, *Tannakian Categories, Linear Differential Algebraic Groups, and Parameterized Linear Differential Equations*, Transformation Groups **14** (1) (2009) 195–223.
 4. O. Golubitsky, M.V. Kondratieva, and A. Ovchinnikov, *Algebraic Transformation of Differential Characteristic Decompositions from One Ranking to Another*, Journal of Symbolic Computation **44** (4) (2009) 333–357.
 5. O. Golubitsky, M.V. Kondratieva, A. Ovchinnikov, *On the generalised Ritt problem as a computational problem*, Journal of Mathematical Sciences **163** (5) (2009) 515–522.
- 2008
 1. A. Ovchinnikov, *Tannakian Approach to Linear Differential Algebraic Groups*, Transformation Groups **13** (2) (2008) 413–446.
 2. O. Golubitsky, M.V. Kondratieva, M. Moreno Maza, and A. Ovchinnikov, *A Bound for Rosenfeld-Gröbner Algorithm*, Journal of Symbolic Computation **43** (8) (2008) 582–610.
 3. O. Golubitsky, M.V. Kondratieva, and A. Ovchinnikov, *Canonical Characteristic Sets of Characterizable Differential Ideals*, Moscow University Mathematics Bulletin **63** (2) (2008) 79–81.
 4. A. Ovchinnikov, *Orders of derivatives in decompositions of radical differential ideals*, Russian Mathematical Surveys **63** (2) (2008) 383–385.
- 2006
 1. A. Ovchinnikov, *Sections of a Differential Spectrum and Factorization Free Computations*, Journal of Mathematical Sciences (New York) **135** (5) (2006) 3355–3362.
- 2005
 1. M.V. Kondratieva and A. Ovchinnikov, *Characteristic Sets of Ordinary Differential Equations*, Programming and Computer Software **31** (2) (2005) 91–96.
- 2004
 1. A. Ovchinnikov, *Characterizable Radical Differential Ideals and Some Properties of Characteristic Sets*, Programming and Computer Software **30** (3) (2004) 141–149.

Papers in preparation

1. B. Antieau, A. Ovchinnikov, *Galois theory of difference-difference equations*.
2. H. Gillet, S. Gorchinskiy, A. Ovchinnikov, *Geometry of differential Tannakian categories*.
3. A. Minchenko, A. Ovchinnikov, *Zariski closures of reductive linear differential algebraic groups*.

Reviewing and refereeing

1. referee reports for the journals:
 - Journal of Pure and Applied Algebra
 - Journal of Symbolic Computation
 - Communications in Algebra
 - Mathematical Notes (Steklov Institute)
 - Sbornik: Mathematics (Steklov Institute)
 - Programming and Computer Software
2. referee reports for the ISSAC and SYNSAC conferences
3. reviewing for the National Science Foundations
4. eleven reviews for the Mathematical Reviews

In Ph.D. committees

- for Liqing Wang, *The Constructibility Theorem for Differential Modules*, University of Illinois at Chicago, Spring 2008

Membership

American Mathematical Society

Teaching experience

- **City University of New York, Queens College:**
 - MATH 231, *Linear Algebra I*
- **University of Illinois at Chicago:**
 - MCS 320, *Introduction to Symbolic Computation*
 - MATH 320, *Linear Algebra*
 - MATH 210, *Calculus III*
 - MATH 310, *Applied Linear Algebra*
- **North Carolina State University:**
 - MA-437, *Applications of Algebra*
 - MA-131, *Calculus I*, lecturer assistant and recitation session instructor
 - “The problem of the month” challenge (for undergraduates) coordinator
 - Preparing the Professoriate program participant
- **Moscow State University:**
 - *Differential Algebra* course: seminar teaching
 - Oral and written entrance examinations in Mathematics: member of the committee
 - *Computer Algebra* and *Programming* courses: grading

Publications in proceedings of conferences

- 2009
 1. A. Ovchinnikov, *Tannakian categories and differential algebra*, invited article, to appear in the proceedings of Differential Algebra and Related Topics workshop, Rutgers University at Newark (DART-II), 2009, 22 pages.
- 2008
 1. O. Golubitsky, M.V. Kondratieva, A. Ovchinnikov, and A. Szanto, *Orders in effective differential Nullstellensatz*, *Le Matematiche*, volume LXIII (2008), 67–69.
- 2006
 1. O. Golubitsky, M. Kondratieva, M. Moreno Maza, A. Ovchinnikov, *Bounds and algebraic algorithms in differential algebra: the ordinary case*, Proceedings of the 9th International Conference on Intelligent Systems and Computer Science, Department of Mechanics and Mathematics, Moscow, 2006, 7–11
- 2004
 1. M.V. Kondratieva and A. Ovchinnikov, *On Computing Characteristic Sets of Arbitrary Radical Differential Ideals*, Proceedings of the conference Applications of Computer Algebra (ACA) 2004, 38–48
 2. A. Ovchinnikov, *Computation of Characteristic Sets of Radical Differential Ideals*, Proceedings of the conference Computer Algebra in Scientific Computing (CASC) 2004, 371–378
 3. A. Ovchinnikov, *On Characterizable Ideals and Characteristic Sets*, *Contributions to General Algebra* 14, 91–108, 2004
- 2002
 1. A. Ovchinnikov and A. Zobnin, *Classification and Applications of Monomial Orderings and the Properties of Differential Term-Ordering*, Proceedings of the conference Computer Algebra in Scientific Computing (CASC) 2002, 237–252
 2. A. Ovchinnikov and A. Zobnin, *A New Approach to Classification of Monomial Orderings*, Proceedings of the Workshop on Under- and Overdetermined Systems of Algebraic or Differential Equations, March 18–19, 2002, Karlsruhe, Germany, 129–140
 3. V. Mityunin, A. Ovchinnikov, A. Semyonov, A. Zobnin, *Involutive and Classical Gröbner Bases Construction from the Computational Viewpoint*, *Computer Algebra and its Application to Physics*, Proceedings of the International workshop (Dubna, June 28–30, 2001), Dubna: JINR, 2002, 221–230

Presentations at conferences and seminars

- 2010
 1. CUNY Queens College, Mathematics Colloquium, *Galois theory of linear differential equations*; February 17
 2. University of Notre Dame, Algebra Seminar, *Differential equations with parameters and linear differential algebraic groups*; January 27

3. University of Illinois at Chicago, Logic Seminar, *Difference closed pseudofields and difference Galois theory*; January 26
 4. AMS Annual Meeting, Special Session on Differential Galois Theory and Group Representations, *Geometry of differential Tannakian categories*, San Francisco; January 13–16.
- 2009
 1. Cornell University, Lie groups seminar, *Linear differential algebraic groups and differential equations with parameters*, Ithaca, New York; December 4.
 2. Kolchin Seminar in Differential Algebra, *Differential Tannakian Categories and Differential Algebraic Groups*, Graduate Center, City University of New York; September 25.
 3. Kolchin Seminar in Differential Algebra, *Tannakian Categories and Algebraic Groups*, Graduate Center, City University of New York; September 11.
 4. Kolchin Seminar in Differential Algebra, *Introduction to Tannakian Categories*, Graduate Center, City University of New York; September 4.
 5. Algebraic Theory of Difference Equations Workshop, *Differential Tannakian categories and fiber functors*, University of Leeds, UK; May 11–15.
 6. AMS Spring Southeastern Sectional Meeting, Recent Advances in Symbolic Algebra and Analysis, invited talk, *On effective differential Nullstellensatz*, Raleigh, NC; April 4–5.
 7. AMS Joint Mathematics Meeting, Special Session on Computational Algebra and Convexity, invited talk, *Estimates of orders of derivatives in differential Nullstellensatz*, Washington, DC; January 5–8.
 - 2008
 1. Moscow State University, Algebra Seminar, *Zariski closures of linear differential algebraic groups*, Moscow, Russia; December 15.
 2. Differential Algebra and Related Topics Workshop, *Differential elimination and bounding orders in effective differential Nullstellensatz*, Rutgers University, Newark, NJ; November 13–16.
 3. University of Illinois at Chicago, Logic Seminar, *Difference elimination and perfect difference ideals*; October 14.
 4. Mathematics Research Communities: Computational Algebra and Convexity Workshop, *Differential Algebra*, Snowbird, Utah; June 21–27.
 5. University of Waterloo, Logic Seminar, *Bounds on derivatives in differential Nullstellensatz*, Waterloo, Canada; June 17.
 6. International Algebraic Conference on the occasion of 100th anniversary of A. G. Kurosh, *Effective Differential Nullstellensatz and Differential Elimination*, Moscow State University, Russia; May 28–June 3.
 7. 12th Workshop on Computer Algebra in Dubna, *An upper bound for Differential Nullstellensatz*, JINR, Dubna, Russia; May 14–16.
 - 2007
 1. Moscow State University, Algebra Seminar, *Algorithmic Methods in Differential Ideal Theory*, Moscow, Russia; December 17.

2. University of Illinois at Chicago, Algebra Seminar, *Differential Hopf Algebras and Tannakian Categories*, Chicago, Illinois; November 5.
 3. University of Illinois at Chicago, Algebraic Geometry Seminar, *Representations of differential algebraic groups*, Chicago, Illinois; November 1.
 4. University of Waterloo, Logic Seminar, *Differential elimination and effective differential Nullstellensatz*, Waterloo, Canada; October 17.
 5. University of Illinois at Chicago, Logic Seminar, *Bounds in differential elimination*, Chicago, Illinois; October 9.
 6. University of Illinois at Chicago, Logic Seminar, *Introduction to differential elimination*, Chicago Illinois; October 2.
 7. Université de Limoges, Non-linear Analysis and Optimization Seminar, *Bounds for orders in constructive differential algebra*, Limoges, France; June 28.
 8. Institut de Mathématiques de Jussieu, Groupe de travail différentiel, *Tannakian categories and representations of linear differential algebraic groups*, Paris, France; June 26.
 9. Université Paul Sabatier, q-Difference Equations Seminar, *Tannakian categories and parameterized linear differential equations*, Toulouse, France; June 22.
 10. Université de Lille 1, Computer Algebra Workgroup, *Bounding canonical characteristic sets and the Rosenfeld-Gröbner algorithm*, Villeneuve d'Ascq, France; June 21
 11. Université de Lille 1, Differential Galois Theory Seminar, *Recovering a linear differential algebraic group from its representations*, Villeneuve d'Ascq, France; June 18.
 12. 11th Workshop on Computer Algebra in Dubna, *A bound for the Rosenfeld-Groebner algorithm with an arbitrary reduction algorithm*, JINR, Dubna, Russia; May 24–25.
 13. Kolchin Seminar at AMS Meeting, *Tannakian Formalism for Linear Differential Algebraic Groups*, Hoboken, NJ; April 14–15.
 14. Second NCSU-China Symbolic Computation Collaboration Workshop, *Bounds in Constructive Theory of Differential Ideals*, Hangzhou, China; March 5–9.
 15. AMS Annual Meeting, *Bounding Orders in Rosenfeld-Gröbner algorithm*; New Orleans, Louisiana; January 5–8.
- 2006
 1. NCSU Algebra Seminar, *Representations of linear differential algebraic groups*, Raleigh, North Carolina; October 20.
 2. Algebraic Theory of Differential Equations, *Characteristic sets for ordinary algebraic differential equations*; Edinburgh, Scotland; July 31–August 11.
 3. ISSAC 2006 Poster session, *Bounds and algebraic algorithms for ordinary differential characteristic sets*; Genova, Italy; July 9–12.
 4. 10th Workshop on Computer Algebra in Dubna, *Bounding orders in Rosenfeld-Groebner algorithm*; Joint Institute for Nuclear Research, Dubna, Russia; May 23–24.
 5. Special Semester on Gröbner Bases, *Bounds for algorithms in differential algebra*; Linz, Austria; May 8–17.

- 2005
 1. Steklov Institute, A.N. Parshin's Seminar on Algebraic Geometry, *On Tannakian Categories for Parametric Differential Equations*, Moscow, Russia; December 21.
 2. Kolchin Seminar on Differential Algebra, *Tannakian Categories approach for Differential Algebraic Groups*; New York City; December 17.
 3. ORCCA Seminar, University of Western Ontario, *Computation of Canonical Characteristic Sets*, London, Canada; September 30.
 4. Symbolic Calculations and Exact Methods in Mathematical Physics (SCEMMP 2005), *On Computation of Canonical Characteristic Sets in Differential Algebra*; Kiev, Ukraine; June 20–26.
 5. East Coast Computer Algebra Day (ECCAD 2005), *Canonical Characteristic Sets of Characterizable Differential Ideals* (poster); Ashland, Ohio; March 12.
- 2004
 1. Kolchin Seminar on Differential Algebra, *Sections of a differential spectrum*; New York City; December 11.
 2. Applications of Computer Algebra (ACA 2004), *On Computing Characteristic Sets of Arbitrary Radical Differential Ideals*; Beaumont, Texas; July 21–23.
 3. Computer Algebra in Scientific Computing (CASC 2004), *Computation of Characteristic Sets of Radical Differential Ideals*; Saint Petersburg, Russia; July 12–19.
 4. International Algebraic Conference (IAC 2004), *Different Approaches to Differential Spectrum*; Moscow, Russia; May 26–June 2.
- 2003
 1. Applications of Computer Algebra (ACA 2003), *Characterizable Radical Differential Ideals and Characteristic Sets*; Raleigh, North Carolina; July 28–31
 2. Conference for Young Algebraists (CYA 18, AAA 65), *The Description of Characterizable Radical Differential Ideals and Construction of Characteristic Sets*; Potsdam, Germany; March 21–23.
- 2002
 1. Computer Algebra in Scientific Computing (CASC 2002), *Classification and Applications of Monomial orderings and the Properties of Differential Term-Orderings*; Yalta, Ukraine; September 22–27.
 2. Conference for Young Algebraists (CYA 17, AAA 63), *A new approach to classification of monomial orderings*; Kaiserslautern, Germany; February 22–24.