

Teaching Experience of Ivan Arzhantsev

Courses

1. “Algebraic Geometry, Algebraic Groups and Invariant Theory” (with D.A. Timashev), Moscow State University, Autumn 2011, Spring 2008, Autumn 2007, Spring 2006, Autumn 2005, Spring 2002
2. “Selected Topics in Invariant Theory”, Moscow State University, Autumn 2010
3. “Invariants of Finite Groups”, Moscow State University, Autumn 2009
4. “Reflection Groups, Coxeter Groups and Geometric Group Theory”, Program Math in Moscow, Independent University, Spring 2009
5. “Elliptic Curves in Cryptography”, Moscow State University, Spring 2008
6. “Algebra and Number Theory”, Saint-Tikhon Orthodox University, Moscow, September 2008 - December 2009
7. “Algebraic Groups and Invariant Theory”, Tübingen, Germany, April - June 2007
8. “Linear Algebra”, Graduate School of Business Administration, Moscow State University, Autumn 2005
9. “Representations of Symmetric Groups”, Moscow State University, March-April 2005
10. “Representations of Classical Groups”, Spring 2004, Independent University of Moscow
11. “Affine Varieties and Invariant Theory”, Grenoble, France, April - June 2003
12. “Geometric Invariant Theory”, Autumn 2000, Independent University of Moscow
13. “Toric varieties”, Independent University of Moscow, Autumn 1999
14. “Applied Algebra: Gröbner Bases” and “Algebraic Aspects of Graph Theory”, Moscow State Pedagogic University, Autumn 1998

Seminars

1. “Introduction to Algebra”, “Linear Algebra”, and “Basic Algebraic Structures”, Moscow State University, 1999 - now
2. Research Seminar “Lie Groups and Invariant Theory” (with A.L. Onishchik, D.A. Timashev and E.B. Vinberg), Moscow State University, 2006 - now
3. “Introductory Seminar Lie Groups and Lie Algebras” (with D.A. Timashev), Moscow State University, 2007 - now
4. “Algebraic Groups and Invariant Theory”, Tübingen, Germany, April-May 2007
5. “Selected Topics in Algebra”, Moscow State University, 1999
6. “Basic Algebra” and “Elementary Mathematics: Algebra”, Moscow State Pedagogic University, 1995-2000

Summer schools

1. VIII Mathematical Summer School “Contemporary Mathematics”, Dubna, Russia, July 2008
course “Representations of Quivers and Matrix Problems”
2. VII Mathematical Summer School “Contemporary Mathematics”, Dubna, Russia, July 2007
course “Algebras of Invariants and 14th Hilbert Problem”
3. IV Mathematical Summer School “Contemporary Mathematics”, Dubna, Russia, July 2004
course “Graded Algebras”
4. II Mathematical Summer School “Contemporary Mathematics”, Dubna, Russia, July 2002
course “Systems of Algebraic Equations and Gröbner Bases”
5. Mathematical Forum, Yakutsk, Russia, July 1999; course “Gröbner Bases and Applications”

Ph. D. Students

1. Chuvashova Ol’ga (with Michel Brion) “*Subtorus Actions and Invariant Hilbert Schemes*” (2007)

For publication see also

- Separation properties for closures of toric orbits. Sbornik: Math. 197 (2006), no. 3-4, 415–432.
- Fan of the main component of the toric Hilbert scheme. Russian Mathematical Surveys 62 (2007), no. 5, 988–989.
- The main component of the toric Hilbert scheme. Tohoku Mathematical Journal 60 (2008), no. 3, 365–382.

2. Zhgun Vladimir “*Geometry of Torus Actions on Flag Varieties*” (2008)

For publication see also

- Variation of the Mumford quotient for torus actions on complete flag varieties. I. Izvestiya Math. 71 (2007), no. 6, 1105–1122.
- Variation of the Mumford quotient for torus actions on complete flag varieties. II. Sbornik: Math. 199 (2008), no. 3-4, 341–359.
- On embeddings of universal torsors over del Pezzo surfaces into cones over flag varieties. Izvestiya Math. 74 (2010), no. 5, 883–923.

3. Minchenko Andrey (with Ernest Vinberg) “*On Semisimple Subalgebras of Exceptional Lie Algebras*” (2008)

For publication see also

- The semisimple subalgebras of exceptional Lie algebras. Transactions of the Moscow Mathematical Society 67 (2006), 225–259.
- Triads and short SO_3 -subgroups of compact groups. Russian Mathematical Surveys 62 (2007), no. 5, 1002–1004.

4. Kuyumzhiyan Karine (with Mikhail Zaidenberg) “*Actions of Algebraic Groups on Affine Varieties and Normality of Orbits’ Closures*” (2011)

For publication see also

- Simple $SL(n)$ -modules with normal closures of maximal torus orbits. Journal of Algebraic Combinatorics 30 (2009), no. 4, 515–538.
- Simple modules of classical linear groups with normal closures of maximal torus orbits. arXiv:1009.4724
- (with I.I. Bogdanov) Simple modules of exceptional groups with normal closures of maximal torus orbits. arXiv:1105.4577

5. Sharoyko Elena “*On Modality of Algebraic Groups Orbits’ Closures*” (under defence)

For publication see also

- On the finiteness of the number of orbits on quasihomogeneous $(\mathbb{C}^*)^k \times SL_2(\mathbb{C})$ -varieties. Mathematical Notes 81 (2007), no. 5-6, 686–694.
- The Hassett-Tschinkel correspondence and automorphisms of a quadric. Sbornik: Math. 200 (2009), no. 11, 1715–1729.

6. Gaifullin Sergey “*On Cox Rings of Affine Algebraic Varieties*” (in preparation)

For publication see also

- Affine toric $SL(2)$ -embeddings. Sbornik: Math. 199 (2008), no. 3-4, 319–339.

7. Anisimov Artem “*Stable Actions and Double Coset Varieties*” (in preparation)

For prepublication see also

- On stability of diagonal actions and tensor invariants. arXiv:1101.0053, to appear in Sbornik: Math.
- Spherical subgroups and double coset varieties. arXiv:1108.2148

8. Fedotov Stanislav “*Representations of Quivers and Geometric Invariant Theory*” (in preparation)

For prepublication see also

- Semi-invariants of 2-representations of quivers. arXiv:0909.4489
- Framed moduli and Grassmannians of submodules. arXiv:1010.4761

9. Perepechko Alexander (with Mikhail Zaidenberg) “*Automorphisms of Algebraic Structures and Flexible Varieties*” (in preparation)

For publication see also

- Affine algebraic monoids as endomorphisms' monoids of finite-dimensional algebras. *Proceedings of the American Mathematical Society* 137 (2009), no. 10, 3227–3233.
- On solvability of the automorphism group of a finite-dimensional algebra. arXiv:1012.0237
- Flexibility of affine cones over del Pezzo surfaces of degree 4 and 5. arXiv:1108.5841

10. Kotenkova Polina “*Equivariant Embeddings of Commutative Algebraic Groups*” (in preparation)

For prepublication see also

- On surjectivity of restrictions of roots on T-varieties. arXiv:1104.0560

Diploma Students

1. Chuvashova Ol’ga “Separation Properties for Toric Orbits” (2004)
2. Korableva Larisa “Stability of Diagonal Actions and PRV-Theorem” (2005)
3. Tennova Natalia “On Affinely Closed Homogeneous Spaces ” (2005)

For publication see also

- A criterion for affinely closed homogeneous spaces of solvable groups. *Moscow University Mathematical Bulletin* 60 (2006), no. 5, 39–42.
4. Zhgoon Vladimir “Geometric Invariant Theory and Torus Actions on Grassmannians” (2005)
 5. Mironov Denis “Representations of Quivers with an Open Orbit” (2005)
 6. Sharoyko Elena “Actions with a Finite Number of Orbits” (2006)
 7. Kuptsov Petr “Polytopal Linear Groups and Graded Algebras” (2007)
 8. Kuyumzhiyan Karine “On Normality of Closures of Maximal Torus Orbits” (2008)
 9. Gaifullin Sergey “Toric Affine $SL(2)$ -Embeddings” (2008)
 10. Petukhov Alexey “Affine Homogeneous Spaces for Non-Reductive Groups” (2008)

For publication see also

- An affinity criterion for a quotient of an algebraic group over a one-dimensional subgroup. *Russian Mathematical Surveys* 62 (2007), no. 5, 1005–1006.
11. Nurligareev Haidar “Normal Orbit Closures for Projective Actions of Exceptional Groups” (2008)
 12. Vel’tischev Mikhail “Subtorus Actions on Affine Toric Surfaces” (2008)

13. Fedotov Stanislav “Affine Algebraic Groups with Periodic Components” (2009)
For publication see also
 - Affine algebraic groups with periodic components. Sbornik: Math. 200 (2009), 1089–1104.
14. Kotenkova Polina “GIT-Equivalence and Diagonal Actions” (2010)
For publication see also
 - GIT-equivalence and diagonal actions. Mathematical Notes 90 (2011), no. 2, 269–279.
15. Netai Igor “Parabolically Connected Subgroups” (2010)
For publication see also
 - Parabolically connected subgroups. Sbornik: Math. 202 (2011), no. 8, 81–94.
16. Perepechko Alexander “Endomorphisms of Algebraic Monoids” (2010)
17. Devyatov Rostislav “Generically Transitive Actions of Commutative Unipotent Groups” (2011)
18. Pechenkin Nikolay “Geometric Realizations of the Altmann-Hausen Family” (2011)