

Publications of Ivan Arzhantsev

Refereed Articles

1. *Flexible varieties and automorphism groups*. With H. Flenner, S. Kaliman, F. Kutzschebauch, and M. Zaidenberg. Duke Mathematical Journal, to appear. See also Max-Planck-Institut für Mathematik, Preprint Series 2010 (106); arXiv:1011.5375, 41 pages.
2. *Polyhedral divisors and SL_2 -actions on affine T -varieties*. With A. Liendo. Michigan Mathematical Journal, to appear. See also Prepublication de l'Institut Fourier, hal-00595725; arXiv:1105.4494, 26 pages.
3. *Flag varieties, toric varieties, and suspensions: three instances of infinite transitivity*. With K. Kuyumzhiyan and M. Zaidenberg. Sbornik: Math. 203 (2012), no. 7, 3–30.
4. *Hassett-Tschinkel correspondence: Modality and projective hypersurfaces*. With E.V. Sharoyko. Journal of Algebra 348 (2011), no. 1, 217–232.
5. *Flag varieties as equivariant compactifications of \mathbb{G}_a^n* . Proceedings of the American Mathematical Society 139 (2011), no. 3, 783–786.
6. *Finite-dimensional subalgebras in polynomial Lie algebras of rank one*. With E. Make-donskii and A. Petravchuk. Ukrainian Mathematical Journal 63 (2011), no. 5, 827–832.
7. *Homogeneous toric varieties*. With S.A. Gaifullin. Journal of Lie Theory 20 (2010), no. 2, 283–293.
8. *Cox rings, semigroups and automorphisms of affine algebraic varieties*. With S.A. Gaifullin. Sbornik: Math. 201 (2010), no. 1, 1–21.
9. *Saturated subfields and invariants of finite groups*. With A.P. Petravchuk. Mathematical Notes 86 (2009), no. 5, 625–628.
10. *Projective embeddings of homogeneous spaces with small boundary*. Izvestiya Math. 73 (2009), no. 3, 437–453.
11. *On factoriality of Cox rings*. Mathematical Notes 85 (2009), no. 5, 623–629.
12. *Geometric Invariant Theory via Cox rings*. With J. Hausen. Journal of Pure and Applied Algebra 213 (2009), no. 1, 154–172.
13. *Invariant ideals and Matsushima's criterion*. Communications in Algebra 36 (2008), no. 12, 4368–4374.
14. *On the multiplication map of a multigraded algebra*. With J. Hausen. Mathematical Research Letters 14 (2007), no. 1, 129–136.
15. *Affine embeddings of homogeneous spaces*. In “Surveys in Geometry and Number Theory”, N. Young (Editor), London Mathematical Society Lecture Notes Series 338, Cambridge University Press, 2007, 1–51.
16. *Closed polynomials and saturated subalgebras of polynomials algebras*. With A.P. Petravchuk. Ukrainian Mathematical Journal 59 (2007), no. 12, 1783–1790.

17. *On embeddings of homogeneous spaces with small boundary*. With J. Hausen. Journal of Algebra 304 (2006), no. 2, 950–988.
18. *On affinely closed homogeneous spaces*. With N.A. Tennova. Journal of Mathematical Sciences (Springer) 131 (2005), no. 6, 6133–6139.
19. *On the canonical embedding of certain homogeneous spaces*. With D.A. Timashev. In “Lie Groups and Invariant Theory: A.L. Onishchik’s jubilee volume” (E.B. Vinberg, Editor), AMS Translations, Series 2, vol. 213 (2005), 63–83.
20. *Classification of affine homogeneous spaces of complexity one*. With O.V. Chuvashova. Sbornik: Math. 195 (2004), no. 6, 765–782.
21. *Algebras with finitely generated invariant subalgebras*. Annales de l’Institut Fourier 53 (2003), no. 2, 379–398.
22. *On stability of diagonal actions*. Mathematical Notes 71 (2002), no. 5–6, 735–738.
23. *A classification of reductive linear groups with spherical orbits*. Journal of Lie Theory 12 (2002), no. 1, 289–299.
24. *Invariant subalgebras and affine embeddings of homogeneous spaces*. Research and Exposition in Mathematics 25 (2002), I. Bajo, E. Sanmartín (Eds.), Recent Advances in Lie Theory, Heldermann Verlag Berlin, 121–126.
25. *Uniqueness of addition in semisimple Lie algebras*. Russian Mathematical Surveys 56 (2001), no. 3, 569–571.
26. *On modality and complexity of affine embeddings*. Sbornik: Math. 192 (2001), no. 8, 1133–1138.
27. *Affine embeddings with a finite number of orbits*. With D.A. Timashev. Transformation Groups 6 (2001), no. 2, 101–110.
28. *On stability of subgroup actions on certain quasihomogeneous G -varieties*. Journal of Lie Theory 10 (2000), no. 2, 345–357.
29. *Contractions of affine spherical varieties*. Sbornik: Math. 190 (1999), no. 7, 937–954.
30. *On normality of spherical orbit closures*. Functional Analysis and its Applications 31 (1997), no. 4, 278–280.
31. *On SL_2 -actions of complexity one*. Izvestiya Math. 61 (1997), no. 4, 685–698.
32. *On actions of reductive groups with one-parameter family of spherical orbits*. Sbornik: Math. 188 (1997), no. 5, 639–655.

Conference Proceedings and other Publications

1. *Torsors over Luna strata*. In “Torsors, étale homotopy and applications to rational points”. Proceedings of the ICMS workshop in Edinburgh, 10–14 January 2011, London Mathematical Society Lecture Note Series, A. Skorobogatov (Editor), to appear. See also arXiv:1104.5581, 11 pages.

2. *Student Olympiads at Faculty of Mechanics and Mathematics in Moscow State University*. With V.I. Bogachev, A.A. Zaslavski, V.Yu. Protasov, A.M. Raigorodski, and A.B. Skopenkov. *Math. Prosveschenie* 14 (2010), 225–234 (Russian).
3. *Dirichlet’s principle and its applications in Geometry*. In: *Mathematics in Problems*. A.A. Zaslavski et al. (Eds), MCCME, Moscow (2009), 372–378 (Russian).
4. *Ernest Borisovich Vinberg*. With S.M. Gusein-Zade, Yu.S. Ilyashenko, A.L. Onishchik, A.B. Sosinsky, D.A. Timashev, and M.A. Tsfasman. *Moscow Mathematical Journal* 8 (2008), no. 4, 617–620.
5. *Some results on uniqueness of addition in Lie algebras*. *Proceedings of the First Colloquium on Lie Theory and Applications*, I. Bajo, E. Sanmartín (Eds.), Universidad de Vigo (2002), 19–24.
6. *Invariant differential operators and representations with spherical orbits*. *Proceedings of Institute of Mathematics of NAS of Ukraine* 43 (2002), no. 2, 419–424.
7. *Uniqueness of addition in Lie algebras, I*. With A.V. Titov. *Moscow University Mathematical Bulletin* 56 (2001), no. 2, 38–40.
8. *Uniqueness of addition in Lie algebra $sl_2(K)$* . *Moscow University Mathematical Bulletin* 55 (2000), no. 4, 29–31.
9. *Uniqueness of addition in Lie algebra $sl(2)$* . In “*Lie Algebras, Rings and Related Topics*” (Fong Yuen, A.A. Mikhalev, E. Zelmanov, Eds), Springer-Verlag Hong Kong Ltd. (2000), 1–4.
10. *Algebraic curves and Hilbert’s 14th problem*. *Moscow University Mathematical Bulletin* 49 (2000), no. 4, 15–19.

Books and Lecture Notes

1. *Cox rings*. With U. Derenthal, J. Hausen, and A. Laface. To to be published by Cambridge University Press in the Cambridge Studies in Advanced Mathematics. The first chapter is available at arXiv:1003.4229, 56 pages.
2. *Student Olympiads in Algebra at Moscow State University*. With V.V. Batyrev et al. MCCME, Moscow, 2012, 72 pages (Russian).
3. *A Collection of Problems in Algebra*. With V.A. Artamonov et al. Edited by A.I. Kostrikin. New Edition. MCCME, Moscow, 2009, 408 pages (Russian).
4. *Graded algebras and 14th Hilbert problem*. Lecture Course. MCCME, Moscow, 2009, 63 pages (Russian).
5. *Gröbner bases and systems of algebraic equations*. Lecture Course. 1th Edition: Moscow, Dialog-MGU, 1999, 36 pages; 2nd Edition: Moscow, Max-Press, 2002, 88 pages; 3rd Edition. MCCME, Moscow, 2003, 67 pages (Russian).

Preprints

1. *On orbits of the automorphism group on an affine toric variety.* With I. Bazhov. arXiv:1203.2902, 12 pages.
2. *The automorphism group of a variety with torus action of complexity one.* With J. Hausen, E. Herppich, and A. Liendo. arXiv:1202.4568, 35 pages.
3. *Acyclic curves and group actions on affine toric surfaces.* With M. Zaidenberg. Max-Planck-Institut für Mathematik, Preprint Series 2011 (61); arXiv:1110.3028, 29 pages.
4. *Factorial algebraic group actions and categorical quotients.* With D. Celik and J. Hausen. arXiv:0908.0443, 11 pages.

Students' publications

Refereed articles

1. A.B. Anisimov. On stability of diagonal actions and tensor invariants. *Sbornik: Math.* 203 (2012), no. 4, 47–60.
1. A.B. Anisimov. Spherical subgroups and double coset varieties. *Journal of Lie Theory* 22 (2012), no. 2, 505–522.
2. P.Yu. Kotenkova. GIT-equivalence and diagonal actions. *Mathematical Notes* 90 (2011), no. 1-2, 250–259.
3. I.V. Netay. Parabolically connected subgroups. *Sbornik: Math.* 202 (2011), no. 8, 1169–1182.
4. V.S. Zhgun. On embeddings of universal torsors over del Pezzo surfaces into cones over flag varieties. *Izvestiya Math.* 74 (2010), no. 5, 883–923.
5. A.Yu. Perepechko. Affine algebraic monoids as endomorphisms' monoids of finite-dimensional algebras. *Proceedings of the American Mathematical Society* 137 (2009), no. 10, 3227–3233.
6. K.G. Kuyumzhiyan. Simple $SL(n)$ -modules with normal closures of maximal torus orbits. *Journal of Algebraic Combinatorics* 30 (2009), no. 4, 515–538.
7. E.V. Sharoiko. The Hassett-Tschinkel correspondence and automorphisms of a quadric. *Sbornik: Math.* 200 (2009), no. 11, 1715–1729.
8. S.N. Fedotov. Affine algebraic groups with periodic components. *Sbornik: Math.* 200 (2009), no. 7, 1089–1104.
9. O.V. Chuvashova. The main component of the toric Hilbert scheme. *Tohoku Mathematical Journal* 60 (2008), no. 3, 365–382.
10. V.S. Zhgun. Variation of the Mumford quotient for torus actions on complete flag varieties. II. *Sbornik: Math.* 199 (2008), no. 3-4, 341–359.
11. S.A. Gaifullin. Affine toric $SL(2)$ -embeddings. *Sbornik: Math.* 199 (2008), no. 3-4, 319–339.
12. V.S. Zhgun. Variation of the Mumford quotient for torus actions on complete flag varieties. I. *Izvestiya Math.* 71 (2007), no. 6, 1105–1122.
13. E.V. Sharoiko. 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.
14. O.V. Chuvashova. Fan of the main component of the toric Hilbert scheme. *Russian Mathematical Surveys* 62 (2007), no. 5, 988–989.
15. A.V. Petukhov. An affinity criterion for a quotient of an algebraic group over a one-dimensional subgroup. *Russian Mathematical Surveys* 62 (2007), no. 5, 1005–1006.
16. O.V. Chuvashova. Separation properties for closures of toric orbits. *Sbornik: Math.* 197 (2006), no. 3-4, 415–432.

17. N.A. Tennova. A criterion for affinely closed homogeneous spaces of solvable groups. *Moscow University Mathematical Bulletin* 60 (2006), no. 5, 39–42.

Preprints

2. O.V. Chuvashova and N.A. Pechenkin. Quotients of an affine variety by an action of a torus. arXiv:1202.5760, 20 pages.

3. A.B. Anisimov. On existence of double coset varieties. arXiv:1111.5171, 6 pages, to appear in *Colloquium Mathematicum*.

4. I.A. Bazhov. On orbits of the automorphism group on a complete toric variety. arXiv:1110.4275, 6 pages, to appear in *Beiträge zur Algebra und Geometrie*.

5. A.Yu. Perepechko. Flexibility of affine cones over del Pezzo surfaces of degree 4 and 5. arXiv:1108.5841, 6 pages, to appear in *Functional Analysis and its Applications*.

6. I.I. Bogdanov and K.G. Kuyumzhiyan. Simple modules of exceptional groups with normal closures of maximal torus orbits. arXiv:1105.4577, 11 pages, to appear in *Mathematical Notes*.

7. P.Yu. Kotenkova. On surjectivity of restrictions of roots on T-varieties. arXiv:1104.0560, 7 pages.

8. A.Yu. Perepechko. On solvability of the automorphism group of a finite-dimensional algebra. arXiv:1012.0237, 13 pages.

9. S.N. Fedotov. Framed moduli and Grassmannians of submodules. arXiv:1010.4761, 32 pages, to appear in *Transactions of the American Mathematical Society*.

10. K.G. Kuyumzhiyan. Simple modules of classical linear groups with normal closures of maximal torus orbits. arXiv:1009.4724, 19 pages.

11. R.A. Devyatov. Generically transitive actions on multiple flag varieties. arXiv:1007.1353, 10 pages.

12. S.N. Fedotov. Semi-invariants of 2-representations of quivers. arXiv:0909.4489, 7 pages, to appear in *Mathematical Notes*.