

Curriculum Vitae Alexander Borisov

Contact Information

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Research Interests

Algebraic Geometry, Number Theory and related areas.

Professional Experience

2006 – current Assistant professor, University of Pittsburgh

2000–2006 Visiting assistant professor, the Pennsylvania State University.

1999–2000 William Chauvenet assistant professor, Washington University, St. Louis.

1997–1999 Instructor, the Pennsylvania State University.

1996–1997 Post-Doc, the University of Georgia.

Education

1993–96 Ph.D. student, Penn State University, adviser Yuri Zarhin.

1992–93 Ph.D. student, Moscow State University, adviser V. Iskovskikh.

1987–92 Student, Moscow State University, adviser V. Iskovskikh.

Honors and Grants

2007–2008 Standard Award, from the National Security Agency (NSA).

2005–2007 Young Investigator Award, from the National Security Agency (NSA).

1993–95 Haskell B. Curry Fellowship from the mathematics department of Penn State University.

1996 Vollmer-Kleckner Scholarship in Science from the Eberly College of Science and mathematics department of Penn State University.

1992 Diploma cum laude from the Moscow State University. (Had straight A-s while a student there, and received some honorary fellowships).

1985–87 I and II awards at the all-USSR Mathematical Olympiads.

Referee Activity

I have refereed papers for *Inventiones Mathematicae*, *American Journal of Mathematics*, *Duke Mathematical Journal*, *Memoirs of the American Mathematical Society*, *International Journal of Mathematics and Mathematical Sciences*, *Taiwanese Journal of Mathematics*, and *Journal of Number Theory*.

I have refereed grants for the National Science Foundation (NSF) and the U.S. Civilian Research and Development Foundation (CRDF).

Reviewer Activity

I have been reviewing for Math Reviews since 2001.

Mathematics Competitions Organization Experience

1987–1993 Actively participated in the scientific part of the organization of high school mathematical Olympiads in USSR, specifically problem inventing and grading of all-USSR Olympiads and training camps for International Olympiads. A member of all-USSR Mathematical Olympiad Jury 1990–1992, a coordinator at the International Mathematical Olympiad in Moscow (1992).

Visa Information

I am a permanent resident of U.S.A. since 2001 (granted under the “alien with extraordinary abilities” category).

Talks

Since 1996 I have given invited talks at Columbia University, UC Santa Barbara, Johns Hopkins University, University of Missouri, University of South Carolina, and George Mason University. I also gave some “in house” talks at University of Pittsburgh, Penn State University, Washington University and University of Georgia. I also gave talks at a number of conferences, including the Birational Geometry Conference in Memory of Wei-Liang Chow (Baltimore, 1996), the Workshop on Diophantine Geometry Related to the ABC Conjecture, (University of Arizona, 1998) and Geometric and Combinatoric Group Theory Conference (Vanderbilt, 2006).

Publications

- 1) A. Borisov, M. Sapis. Polynomial maps over finite fields and residual finiteness of mapping tori of group endomorphisms. *Invent. Math.* **160** (2005), no. 2, 341–356.
- 2) A. Borisov, Y. Wang, M. Nathanson. Quantum integers and cyclotomy. *J. Number Theory* **109** (2004), no. 1, 120–135.
- 3) A. Borisov. Convolution structures and arithmetic cohomology, *Compositio Math.*, **136** (2003), no. 3, 237–254.
- 4) A. Borisov. On a question of Craven and a theorem of Belyi. *Proc. Amer. Math. Soc.* **131** (2003), 3677–3679.
- 5) A. Borisov, V. Shokurov. Directional rational approximations with some applications to algebraic geometry. (Russian) *Tr. Mat. Inst. Steklova* **240** (2003), *Biratsion. Geom. Linein. Sist. Konechno Porozhdennye Algebry*, 73–81.

- 6) A. Borisov. Boundedness of Fano threefolds with log-terminal singularities of given index. *J. Math. Sci. Univ. Tokyo* **8** (2001), no. 2, 329–342.
- 7) A. Borisov. On classification of toric singularities. Algebraic Geometry. 9. *J. Math. Sci. (New York)* **94** (1999), no. 1, 1111–1113.
- 8) A. Borisov, M. Filaseta, T.-Y. Lam, O. Trifonov. Classes of polynomials having only one non-cyclotomic irreducible factor. *Acta Arithmetica*, **90** (1999), no. 2, 121–153.
- 9) A. Borisov. On some polynomials allegedly related to the *abc* conjecture. *Acta Arithmetica*, **84** (1998), no. 2, 109–128.
- 10) A. Borisov. Minimal discrepancies of toric singularities. *Manuscripta Math.* **92** (1997), no. 1, 33–45.
- 11) A. Borisov. Boundedness theorem for Fano log-threefolds. *J. Algebraic Geom.* **5** (1996), no. 1, 119–133.
- 12) A. Borisov, L. Borisov. Singular toric Fano varieties, *Russian Acad. Sci. Sb. Math.* **75** (1993), no. 1, 277–283.

Preprints

- 1) A. Borisov. Quotient singularities, integer ratios of factorials and the Riemann Hypothesis, preprint (2007).
- 2) A. Borisov, M. Dickinson, S. Hastings, A Congruence Problem for Polyhedra, Preprint (2007)
- 3) A. Borisov. Positive positive-definite functions and measures on locally compact abelian groups, preprint (1999).
- 4) A. Borisov. Convex lattice polytopes and cones with few lattice points inside, from a birational geometry viewpoint, preprint (1999).
- 5) A. Borisov, L. Borisov. Three-dimensional toric Fano varieties with terminal singularities, preprint (1990) (Russian).