Curriculum Vitae

DENIS OSIN

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EDUCATION

Ph.D. in Mathematics, Moscow State University, 1999
Advisor: Prof. A.Yu. Olshanskii

B.S. & M.S. in Mathematics, Moscow State University, 1996

RESEARCH INTERESTS

Geometric group theory and related questions in low–dimensional topology and coarse geometry; group theoretic cryptography.

PROFESSIONAL EXPERIENCE

Fall 2005 – present	Associate Professor The City College and the Graduate Center (since Fall 2007) of the City University of New York, USA.
Fall 2003 – Spring 2005	Assistant Professor (postdoctoral position) Vanderbilt University, Nashville, USA.

Visits and short–term positions:

- Moscow State University, Russia (Spring 2003).
- Vanderbilt University, Nashville, USA (Fall 1999, Fall 2002).
- Courant Institute of Mathematical Sciences, New York University, USA (Spring 2002).
- University of Geneva, Switzerland (Spring–Summer 2000, Spring 2001).

GRANTS AND AWARDS

• Co-PI (with V. Shpilrain) NSF grant for the conference "Asymptotic and Geometric Group Theory with Applications", pending.

• PI, National Science Foundation grant in Topology DMS-0605093, $93,285 (2006-2009).

• Co-PI (with L. Shneerson and V. Shpilrain), the City University of New York Collaborative Research Grant, $32,050 (2006/2007).

• Co–PI, Russian Fundation for Basic Research Grants, (1999-2001, 2002-2004, 2005-2007).

• Russian Foundation for Basic Research award for young scientists (MAS grant) (2003).

• Co–PI, The International Association for the Promotion of Co-operation with Scientists from the New Independent States (NIS) of the Former Soviet Union grant (2000-2002).

PRESENTATIONS

Invited conference talks

• "Normal automorphisms of relatively hyperbolic groups", Fields Workshop in Asymptotic Group Theory and Cryptography, Carleton University, Ottawa, Canada, December 2007.

• "Topology of asymptotic cones of finitely generated groups", Workshop on Actions on Trees, Non-Archimedian Words, and Asymptotic Cones, Saint Sauveur, Canada, December 2007.

• "Normal automorphisms of relatively hyperbolic groups", Mathematical Sciences Research Institute, Berkeley, November 2007.

• "Constructing groups without free subgroups", Workshop on Dichotomy Amenable/non-Amenable in Group Theory, American Institute of Mathematics, Palo Alto, October, 2007.

• "Asymptotic dimension and type functions of finitely generated groups", Magnus Conference, New York, September 2007.

• "Problems on relatively hyperbolic groups", American Institute of Mathematics, Palo Alto, April 2007.

• Minicourse "Lacunary hyperbolic groups", two 1-hour talks, Groups007, Marseille, France, February 2007.

• "Cut points in asymptotic cones of finitely generated groups", The 2nd William Rowan Hamilton Geometry and Topology Workshop, Dublin, Ireland, September 2006.

• "Large groups and their periodic quotients", Conference on Geometric and Asymptotic Group Theory with Applications, Manresa, Spain, September 2006.

• "Small cancellation theory over relatively hyperbolic groups", Geometric Group Theory conference, Montreal, Canada, July 2006.

• "The SQ–universality and residual properties of relatively hyperbolic groups", G^3 conference, Mobile, Alabama, March, 2006.

• "Group theoretic Dehn surgery", Conference on Geometric and Probabilistic Methods in Group Theory, College Station, Texas, November, 2005.

• Minicourse on relatively hyperbolic groups, International Conference "Global Analysis and Global Geometry", Tohoku University, Japan, February, 2005.

• "Asymptotic dimension of relatively hyperbolic groups" and "Small cancellation theory over relatively hyperbolic groups" (2 talks), Workshop on K-theory and the Geometry of Groups, University of Hawai'i, January, 2005.

• "Asymptotic invariants of solvable groups", International Algebraic Conference, Krasnoyarsk, Russia, August, 2002.

• "Uniform properties of groups", Workshop on Asymptotic and Probabilistic Group Theory, The Graduate Center of the City University of New York, April, 2002.

Some other colloquium, seminar, and conference talks

• "Group theoretic Dehn surgery", colloquium talk, Vanderbilt University, February 2008.

• "Factorizable groups", New York Group Theory Seminar, October, 2007.

• "Group theoretic Dehn surgery and exotic groups", colloquium talk, Pennsylvania State University, University Park, September 2007.

• "Type functions of finitely generated groups", Geometry and functional analysis seminar, Pennsylvania State University, University Park, September 2007.

• Minicourse "Asymptotic cones, Gromov's Theorem on groups of polynomial growth, rigidity, and filling invariants of finitely generated groups" (4 hours), McGill University, Montreal, Canada, April 2007.

• "Rips construction and Kazhdan property (T)", Group theory and topology seminar, McGill University, Montreal, Canada, April 2007.

• "Factorizable limits of relatively hyperbolic groups", Group theory seminar, Moscow State University, Russia, December, 2006.

• "Cut points in asymptotic cones of finitely generated groups", Group theory and topology seminar, Cornell University, October, 2006.

• Colloquium talk "Group theoretic Dehn surgery", Indiana University – Purdue University Indianapolis, February 2006.

• Colloquium talk "Relatively hyperbolic groups and 3–dimensional topology", University of Illinois at Urbana–Champaign, January 2006.

• "Groups with finitely many conjugacy classes", Group theory and topology seminar, California Institute of Technology, Pasadena, December 2005.

• "Group theoretic Dehn surgery", Group theory and topology seminar, McGill University, Montreal, Canada, December 2005.

• "Uniformly Kazhdan groups", Lie groups, representations and discrete mathematics seminar, Institute for Advanced Study, Princeton, November 2005.

• "Peripheral fillings of relatively hyperbolic groups", New York Group Theory Seminar, The Graduate Center of the City University of New York, October, 2005.

• "Congruence Extension Property and relative hyperbolicity", Group theoretic seminar, Moscow State University, Russia, May, 2005.

• "Peripheral fillings of relatively hyperbolic groups", Group theory and topology seminar, University of Illinois at Urbana–Champaign, May, 2005.

• Colloquium talk "Peripheral fillings of relatively hyperbolic groups", City College of CUNY, New York, March, 2005.

• Colloquium talk "Small cancellations over relatively hyperbolic groups and embedding theorems", Rice University, January, 2005.

• "On infinite groups with finitely many conjugacy classes", International Algebraic Conference, Moscow, May, 2004.

• "Small cancellations over relatively hyperbolic groups and embedding theorems", Algebra and cryptography seminar, City University of New York, May, 2004.

• Colloquium talk "Asymptotic cones of finitely generated groups", City College of CUNY, New York, May, 2004.

• "Relatively hyperbolic groups", AMS workshop on Asymptotic Group Theory, Ohio State University (Athens), March, 2004.

• "Relatively hyperbolic groups" (3 talks), Group theory and topology seminar, Vanderbilt

University, October–November, 2003.

• "Kazhdan constants of finitely generated groups", Algebraic seminar, St. Petersburg Branch of the Steklov Institute of Mathematics, Russia, March, 2003.

• Colloquium talk "Weakly amenable groups", Vanderbilt University, Nashville, April, 2002.

• Colloquium talk "Algebraic entropy of solvable groups", University of Geneva, Switzerland, May, 2001

• "Subgroup distortion in finitely generated groups", International Algebraic Conference dedicated to the memory of O.Yu. Šmidt, Moscow, Russia, September, 2000.

• Colloquium talk "Subgroup distortion in nilpotent Lie groups", University of Geneva, Switzerland, February, 2000.

• "Growth of subgroups in finitely generated groups", New York Group Theory Seminar, The Graduate Center of the City University of New York, December, 1999.

• "Subgroup distortion in solvable groups" (3 talks), Group theory seminar, Vanderbilt University, November, 1999.

• "Subgroups of intermediate relative growth in linear and solvable groups", International Algebraic Seminar, Moscow State University, Moscow, Russia, May, 1999.

• "Rank–growth functions for finitely generated groups", Kurosh Algebraic Conference'98, Moscow, Russia, May, 1998.

• "Growth of rank of subgroups of finitely generated free groups", International Algebraic Conference dedicated to the memory of D.K. Faddeev, St. Petersburg, Russia, June, 1997.

• In 1994–2002, I gave multiple talks on the group–theoretic seminar and algebraic seminar in Moscow State University.

OTHER ACTIVITY

• Co–organizer of the conference "Combinatorial and Geometric Group Theory", Vanderbilt University, Nashville, May 5–10, 2006.

• Coordinator of the Putnam competition at the City College of CUNY. Since 2005, I have trained the CCNY Putnam team.

• Reviewer for MathSciNet.

• Referee for NSF, United States–Israel Binational Science Foundation, and the City University of New York grants.

• Referee for:

Annales Scientifiques de l'ENS
Bulletin of the LMS
Commentarii Mathematici Helvetici
Communications in Algebra
Contemporary Mathematics
Functional Analysis
Functional Analysis and its Applications
Geometriae Dedicata
Geometric and Functional Analysis
Groups, Geometry, and Dynamics
International J. of Algebra and Computations
Israel Journal of Mathematics
Journal of Algebra
Journal of Group Theory
Journal of Topology
Logic and Analysis
Mathematical Notes
Proceedings of the AMS
Serdica Mathematical Journal
Topology
Transactions of the AMS

PUBLICATIONS

Books

[1] D. Osin, Relatively hyperbolic groups: Intrinsic geometry, algebraic properties, and algorithmic problems, *Memoirs Amer. Math. Soc.* **179** (2006), no. 843, vi+100 pp.

Published papers

[2] I. Belegradek, D. Osin, Rips construction and Kazhdan property (T), *Groups, Geom., & Dynam.* **2** (2008), no. 1, 1–12.

[3] A.Yu. Olshanskii, D. Osin, Large groups and their periodic quotients, *Proc. Amer. Math. Soc* **136** (2008), 753-759.

[4] G. Arzhantseva, A. Minasyan, D.V. Osin, The SQ–universality and residual properties of relatively hyperbolic groups, *J. Algebra*, **315** (2007), no. 1, 165–177.

[5] D. Osin, Uniform non–amenability of free Burnside groups, *Arch. Math.* **88** (2007), no. 5, 403-412.

[6] D. Osin, Peripheral fillings of relatively hyperbolic groups, *Invent. Math.* **167** (2007), no. 2, 295–326. (Announced in Electron. Res. Announc. Amer. Math. Soc. 12 (2006) 44-52.)

[7] D. Osin, Elementary subgroups of relatively hyperbolic groups and bounded generation, *Internat. J. Algebra Comput.*, **16** (2006), no. 1, 99–118.

[8] D. Osin, Relative Dehn functions of HNN–extensions and amalgamated products, *Contemp. Math.* **394** (2006), 209–220.

[9] A. Erschler, D. Osin, Fundamental groups of asymptotic cones, *Topology* **44** (2005), no. 4, 827–843.

[10] D. Osin, M. Sapir, Asymptotic cones of relatively hyperbolic groups. Appendix to the paper "Tree graded spaces and asymptotic cones" by C. Drutu and M. Sapir, *Topology* **44** (2005), no. 5, 959–1058.

[11] D. Osin, Asymptotic dimension of relatively hyperbolic groups, *Internat. Math. Res. Notices* **35** (2005), 2143–2162.

[12] D. Osin, Algebraic entropy of elementary amenable groups, *Geom. Dedicata* **107** (2004), no. 1, 133–151

[13] D. Osin, Weak hyperbolicity and free constructions. *Contemp. Math.* **360** (2004), 103–111.

[14] D. Osin, The entropy of solvable groups, *Ergodic Theory & Dynam. Systems* **23** (2003), no. 3, 907–918.

[15] D. Osin, Exponential radicals of solvable Lie groups, *J. Algebra* **248** (2002), 790–805.

[16] G. Arzhantseva, D. Osin, Solvable groups with polynomial Dehn functions, *Trans. Amer. Math. Soc.* **354** (2002), no. 8, 3329–3348.

[17] D. Osin, Elementary classes of groups, (in Russian) *Mat. Zametki* **72** (2002), no. 1, 84–93; English translation in *Math. Notes* **72** (2002), no. 1-2, 75–82.

[18] D. Osin, Weakly amenable groups, *Contemp. Math.* **298** (2002), 105-113.

[19] D. Osin, Kazhdan constants of hyperbolic groups, *Funct. Anal. and its Applications* **36** (2002), no. 4, 290–297.

[20] D. Osin, On rank growth of subgroups in finitely generated groups (in Russian), *Mat. Sbornik* **190** (1999), no. 8, pp. 81–102; translation in *Sbornik Math.* **190** (1999), no. 7-8, 1151–1172.

[21] D. Osin, Distortions of subgroups in nilpotent groups, *Comm. Algebra* **29** (2001), 5439–5463.

[22] D. Osin, On the problem of intermediate subgroup growth in solvable and linear groups, *Proc. Steklov Math. Institute* **231** (2000), no. 4, 316–338.

[23] D. Osin, On generating set's growth functions for subgroups of free groups, *Internat. J. Algebra Comput.*, **9** (1999), no. 1, 41-50.

Submitted journal papers and preprints

[24] D. Osin, Normal automorphisms of hyperbolic groups, prep., 2008.

[25] D. Osin, Questions on relatively hyperbolic groups and related classes, prep. 2007, available at http://www.sci.ccny.cuny.edu/ osin/papers/prob.pdf

[26] A. Olshanskii, D. Osin, M. Sapir, Lacunary hyperbolic groups, arXiv: math.GR/0701365; submitted to *Geom. & Top.*

[27] D. Osin, D. Sonkin, Uniformly Kazhdan groups, preprint, 2006; arXiv: math.GR/0606012.

[28] D. Osin, V. Shpilrain, Public key encryption and encryption emulation attacks; prep., 2007, available at http://www.sci.ccny.cuny.edu/ shpil/secure_pke.pdf; to appear in Proc. CAS-2008.

[29] D. Osin, Small cancellations over relatively hyperbolic groups and embedding theorems, arXiv: math.GR/0411039; submitted to *Annals of Math.*