Mark V. Sapir
Vitae
December, 2017

Personal data:

Born: February 12, 1957.

Marital status: Married, three children.

Education:

1978, Diploma (Mathematics), Ural State University (Russia, U.S.S.R.)

1983, PhD (Mathematics), Ural State University, Moscow State Pedagogical Institute (Russia, U.S.S.R.), advisor: Lev Shevrin.

Professional Experience:

Fall 1997 – present, Professor of Mathematics (Centennial Professor after Sept. 1, 2001), Vanderbilt University.

1993 – 1997, Associate Professor, University of Nebraska - Lincoln, Department of Mathematics and Statistics, Lincoln, Nebraska. Graduate Faculty Fellow, 1993

1991–1993, Visiting Associate Professor, University of Nebraska - Lincoln, Department of Mathematics and Statistics, Lincoln, Nebraska.

1991, Spring, Visiting Associate Professor California State University, Chico, California.

1989–1990, Associate Professor, Ural State University, Sverdlovsk, Russia.

1984–1989, Deputy Director of Computer Science Lab. Sverdlovsk Pedagogical Inst., Sverdlovsk, Russia.

1984–1989, Associate Professor, Sverdlovsk Pedagogical Inst. (1/2 position) Sverdlovsk, Russia.

1979–1984, Assistant Professor, Ural State University, Sverdlovsk, Russia.

Visiting Positions

Spring 2017, G.A. Miller Visiting Professor, University of Illinois, Urbana-Champaign.
April-July, 2015, Visiting researcher, MPIM, Bonn, Germany.
March, 2014, Visiting researcher, IHP, Paris, France.
September-December 2012, Visiting Professor, Stevens Institute of Technology, Hoboken, NJ
August, December 2012, Visiting Professor, CRM, Barcelona, Spain.
June-July 2012, Visiting Professor, IHES, Bures-Sur-Yvette, France.
April 2012, Visiting Professor, Mittag-Leffler Institute, Sweden.
June-July 2010, Visiting Researcher, MPIM, Bonn, Germany.
September-December, 2007, Simons Professor in MSRI, Berkeley.
June, 2007, Visiting Researcher, Bernoulli Center, Lausanne, Switzerland.
July-August 2007, Visiting Researcher, MPIM, Bonn, Germany.
May-August 2006, Visiting Researcher, MPIM, Bonn, Germany.
July-August, 2005, Visiting Researcher, MPIM, Bonn, Germany.
May-June, 2005, Visiting Professor, IHES, Bures-Sur-Yvette, France.
August-December, 2003, Visiting Professor, IHES, Bures-Sur-Yvette, France.
June-July, 2003, Lady Davis visiting Professor, Technion, Haifa, Israel.
Summer, 2002, Visiting Professor, University of Lille-1, Lille, France.
Summer, 2001, Visiting Professor, IHES, Bures-Sur-Yvette, France.
Summer, 2000, Visiting Professor, University of Bordeaux 1, France.

Summer, 2000, Visiting researcher, MPIM, Bonn, 2000.
Summer, 1999, Visiting Professor, IHES, Bures-Sur-Yvette, France.
Summer, 1999, Visiting Professor, University of Paris-7 France.
Fall 1998, Visiting Professor, Hebrew University, Jerusalem, Israel
Summer 1995, Visiting Professor, LITP, University of Paris-6, France.
Summer 1994, Visiting Professor, Monash University, Australia.
August 1988, Visiting Professor, University of Brno, Czechoslovakia.

Research Interests Algorithmic problems in algebra, geometric and asymptotic group theory.

Grants, Contracts

"Thematic Program: L^2-invariants and their analogues in positive characteristic", DMS-1748644, (with Yago Antolin)
2017, REU supplement for NSF DMS-1500180.
(April 1, 2016 - March 31, 2017) NSF grant DMS 1608473, "Conference: Geometric methods in group theory" (with Andrew Sale, Denis Osin, Yago Antolin Pichel)

(June 1, 2015 - May 31, 2018) NSF grant DMS-1500180 "Asymptotic and geometric group theory" (with A.Yu. Olshanskii).

(September 15, 2013 - August 31, 2016) NSF grant DMS-1318716 "Computation with Finitely Presented Groups" (with B. Gilman, A. Miasnikov, A. Myasnikov, A. Ushakov)

(June 2013) NSF grant DMS-1261557 for the International Conference on Geometric, Combinatorial and Dynamics aspects of Semigroup and Group Theory (with John Meakin, awarded October 2012).

(July 2012 - July 2014) NSF grant DMS-1161294, "Asymptotic invariants of groups" (with A.Yu. Olshanskii).

2011-2015, BSF (US-Israeli) grant 2010295 "Transformation Groups and Geometry" (with T. Gelander, G. Margulis, S. Mozes, G. Soifer).

(June-August, 2011) NSF REU supplement DMS-1136459 to DMS-0700811.

(July 2007-July 2012) NSF grant DMS-0700811 "Asymptotic group theory"(with A.Yu. Olshanskii).

August 2006, AMS travel grant to attend ICM-2006.

2005-2009, BSF (US-Israeli) grant, "Free discrete and dense subgroups in Lie, affine and hyperbolic groups" (with T. Gelander, G.Margulis, S. Mozes, G. Soifer).

2005-2008, NSF grant DMS-0455881, "FRG: Asymptotic and probabilistic methods in geometric group theory" (with G. Pisier, R. I. Grigorchuk, G. Margulis, A. Lubotzky, E. Zelmanov, A.Olshanskii).

2003-2006, NSF grant DMS 0245600 "Asymptotic properties in geometric group theory" (with A.Yu.Olshanskii).

2001-2002, An NSF grant for organizing the Workshop "K-theory and geometric group theory" (with G. Yu).

2001-2003, BSF Grant (USA-Israel) #1999298, "Asymptotic properties of groups and group actions on negatively curved spaces" (with L. Carbone, I. Kapovich, S. Margolis, E. Rips).

2000-2001, Houghton-Mifflin Publishing, Contract "Linear Algebra WebTester".

2000-2003, NSF Grant # 0072307, "Algorithmic and asymptotic properties of groups" (with A.Yu. Olshanskii), $100,000

1999-2001, NSF grant, "Algorithmic problems in groups and semigroups", $75,000.

1999, Grant from the provost office and the college of Arts and Sciences, Vanderbilt University, "Pre-calculus WebTests", $36,000.

1997, Contract with the Learning Company, "Grades 1, 2, 3 Reading and Math tests on the Web".

1996, Contract with the SoftKey company, "WebTester": testing math skills over the Web.

1997-1998, NSF Grant supplement to DMS-9623284, for organizing the International Conference on Algorithmic Problems in Groups and Semigroups, Lincoln (NE), May, 1998, $10,000.

1996-1998, NSF Grant DMS-9623284, "Mathematical Sciences: Algorithmic Problems in Groups and Semigroups", $116,619 (with J.C. Birget, S. Margolis, J. Meakin).

1994, University of Minnesota Geometry Center (NSF funded Science and Technology Center) Grant "GASP: Groups, Automata and Semigroups Project (with J.-C. Birget, S. Margolis, J. Meakin, $28,443)

1994, REU Supplement to the NSF Grant DMS #9203981, "Economical bases for finite symmetric inverse semigroups" (with J. Meakin, $3,125)

1992-1994, NSF Grant DMS #9203981 "Algorithmic and computational methods in algebra" (together with J.Meakin, S.Margolis, J-C. Birget, $216,000 for three years).

1993-1994, Contract with The Learning Company, "Math Processor: developing educational software for the course of K-3 mathematics" (with G. Linetsky)

1989-1991, Contract with the Soviet Ministry of education for developing software for the course "Informatics" in the IBM-USSR Pilot School Project (with G. Linetsky, A. Gein, V. Sholohovich)

Honors

Fellow of the AMS (2012)

The 75 KAM Colloquium, Prague, Czech Republic, June 17, 2010.

The 33d William J. Spencer Lecture, Kansas State University (Manhattan, KS), November 6, 2008.

Plenary talk at the Canadian Math. Society Winter Meeting in Ottawa (Canada), December, 2008.

Invited 1-hour lecture at the AMS Sectional Meeting, Huntsville, AL, October, 2008.

Simons visiting professorship at MSRI, Fall, 2007.

Invited talk at ICM-2006 (Madrid), August, 2006.

Lady Davis Visiting professorship in Technion university, Israel, 2003.

1990, Gold medal and diploma of honor of the All-Union Exhibition organized by the Soviet Ministry of education (for the educational software and the text book for the high school course "Informatics").

PhD students: Tanya Jajcayova (PhD, December 8, 1997, joint with J. Meakin), "HNN extensions of inverse semigroups", Iva Špakulová (born Kozáková) (PhD, December 1, 2008) "Percolation and Ising model on tree-like graphs", Curt Kent (PhD, May 2013), "Topological properties of asymptotic cones of finitely generated groups", Gili Golan (PhD in Bar Ilan University, 2015), "Coloring Cayley

graphs of semigroups, Sam Corson (PhD, April, 2016), "Subgroups and Quotients of Fundamental Groups".

Current PhD student: Jordan Nikkel.

Member of PhD committees: Vesna Kilibarda (1994), Tim Deis (1996), Petar Markovic (1999-2003), Miclos Maroti (1999-2002), Tal Pasternak (2003), Alexei Muranov (2003-2006), Dmitry Sonkin (2003-2005), Ashot Minasyan (2003-2005), Marcin Kozik (2003-2004), Pietr Nowak (2007-2008), Bogdan Nica (2007-2009), Iva Špakulová (Kozáková) (2007-2008), Vladimir Chainikov (2009-2012), Hang Wang (2009-2011), Tara Davis (2009-2011), Nick Boatman (2009-2013), Curt Kent (2009-2013), Michael Hull (2010-2013), Samuel Corson (2013 - 2016), Jordan Nikkel (2014 -), Bryan Jacobson (2015-), Sahana Hassan Balasubramanya (2015-)

Senior thesis committee: Dan Betea (2007), Gregory Gauthier (2011-2012), Mitchel Kleban (2014-2015)

REU: Gregory Gauthier (June-August 2011), Mitchel Kleban (June-August, 2014)

Supervising postdoctoral fellows: Denis Osin (2003-2004), Dan Guralnik (2005-2008), Romain Tessera (2006-2008), Michael Brandenburgsky (2010-2013), Rémi Coulon (2011-2014), Gili Golan (2015 -).

Editorial boards

Journal of Combinatorial Algebra (European Mathematical Society Publishing), Founder and Editor-in-Chief (since 2016)

Groups, Complexity, Cryptology (since 2011)

Groups, Geometry and Dynamics (2006-2012);

Journal of Pure and Applied Algebra (2005-2012);

Algebra and Discrete Mathematics (since 2003);

Algebra Universalis (1999-2004);

International Journal of Algebra and Computation (2000-2015), Managing Editor (2011-2015);

Algebra and combinatorics (book series) (since 2001).

Membership in Organizing Committees

(1) Thematic Program: "L^2-invariants and their analogues in positive characteristic" (Madrid, February-June, 2018).
(2) Shanks conference, Nashville, TN, May 14-18, 2018.
(3) Shanks workshop on Geometric and Combinatorial Group Theory, Nashville, TN, April 23-24, 2016.
(4) Dynamics and Computability, March 9-13, 2015 (Banff, Canada).
(5) Combinatorial and Geometric Group Theory, December 14-19, 2014 (Jerusalem, Israel).
(6) ICM Satellite Conference on Geometric Group Theory& Geometric Structures, August 7 – 12, 2014, KAIST (Daejeon, Korea).
(7) International Conference on Geometric, Combinatorial and Dynamics aspects of Semigroup and Group Theory, Bar Ilan, Israel, June 11-14, 2013.
(8) Geometry and analysis on large networks, Vanderbilt, Nashville, TN, March 12-16, 2012.
(9) AMS sectional meetings in Honolulu, HI, March 3-4, 2012 and Tampa, FL, March 10-11, 2012.
(10) Geometric and Combinatorial Group Theory, Düsseldorf, Germany, July 26-August 4, 2012.

(11) Monster groups, ESI, Vienna, December 12-18, 2011.

(12) L^2-Invariants, AIM Institute, September, 2011.

(13) Special semester in combinatorial and geometric group theory, McGill, Fall, 2010.

(14) Percolation on transitive graphs, AIM institute, May, 2008.

(15) Dichotomy "amenable/non-amenable" in combinatorial group theory, AIM institute, October, 2007.

(16) ICM satellite conference "Geometric and Asymptotic Group Theory with Applications", UPC Manresa (Barcelona), 1-5 September, 2006.

(17) Group theory and universal algebra, Bar Ilan-Beersheva, Israel, December, 2005.

(18) Combinatorial and geometric group theory, Nashville, TN, May, 2006.

(19) K-theory and geometric group theory, Honolulu, HI, January, 2005.

(20) Group theory and topology, AMS meeting, Nashville, TN, October, 2004.

(21) Asymptotic and algorithmic methods in algebra, Banff, June, 2005.

(22) Asymptotic and probabilistic methods in geometric group theory, Geneva, June 2005.

(23) Probabilistic methods in group theory, Athens, OH (AMS sectional meeting), March, 2004.

(24) Geometric group theory on the Gulf, Pensacola, November, 2002.

(25) Shanks lectures on modern algebra, Vanderbilt, May 2002.

(26) Workshop "K-theory and geometric group theory", Vanderbilt, November, 2001.

(27) International conference in algorithmic and asymptotic problems for groups and semigroups, Lincoln, NE, May 15-19, 2000.

(28) International conference in semigroup theory and applications, St. Petersburg, July 1999.

(29) International Conference on Non-Positive Curvature in Group Theory, Topology and Geometry, Vanderbilt University, May, 1998.

(30) International Conference on algorithmic Problems in Groups and Semigroups, Lincoln, NE, May, 1998.

(31) International Conference in Automata Theory (Program committee), London, Ontario (Canada), August, 1997.

(32) International Conference on Modern Algebra and Applications in Computer Science, Nashville, TN, (May 1996).

(33) AMS meeting, Special section "Identities and Their Applications", College Station (TX), April, 1993.

Other activities related to research

NSF panel on algebra (Representation Theory), January, 2005.

NSA panel on algebra and discrete mathematics, 2011, 2012, 2013, 2016

NSF panel on geometric group theory, 2013, 2016

BSF panel, 2013

NSF postdoctoral fellowship panel, 2017

ICM-2014 Algebra panel, 2012.

Invited Addresses, Conferences

(1) Invited speaker: "Workshop in Group Theory", Technion, Israel, January 4-6, 2017.

(2) Invited speaker: "Workshop on the Thompson Groups", Odense, Denmark, August 15-17, 2016.

(3) Invited speaker: "Beyond Hyperbolicity" DPMMS, University of Cambridge, UK, 20-24 June 2016.

(4) Invited speaker: "Geometry and Computation on Groups and Complexes", Newcastle University, UK, 6 10 June 2016.

(5) Invited speaker: GAGTA-2015, September 12-18, 2015 (Luminy, France).

(6) Invited speaker: "Rigidity", April 26-30, 2015 (Hausdorff Institute, Bonn, Germany).

(7) Invited speaker: Dynamics and Computability, March 9-13, 2015 (Banff, Canada).

(8) Invited speaker: Combinatorial and Geometric Group Theory, December 14-19, 2014 (Jerusalem, Israel).

(9) Invited speaker: "Growth in groups", Neuchatel, Switzerland, June 24-27, 2014.

(10) Invited speaker: "Workshop on the extended family of R. Thompson's group", University of St Andrews, UK, May 26-30, 2014.

(11) Invited speaker: "Asymptotic properties of groups", IHP, Paris, France, March 24 - 28, 2014.

(12) Colloquium, Rice University, February 6, 2014.

(13) Minicourse on Geometric and algorithmic group theory, Ekaterinburg, Russia, May 25-26, 2013 (8 hours of lectures).

(14) Minicourse on Geometric group theory, St John's, Newfoundland, Canada, March 4-8, 2013 (three lectures).

(15) Colloquium, Memorial University, St John's, Newfoundland, Canada, March 6, 2013.

(16) Colloquium, Rutgers University-New Brunswick, October 12, 2012.

(17) Invited speaker: "Group theory on the Hudson", Stevens Tech, Hoboken, NJ and CUNY, New York, NY, September 21-22, 2012.

(18) Invited speaker: "Automorphisms of Free Groups", CRM, Barcelona, Spain, September 6-7, 2012.

(19) Invited speaker: "Semigroup theory conference", Bar Ilan University, Israel, June 3, 2012.

(20) Invited speaker (one hour lecture): Israeli Mathematical Society meeting, Bar Ilan University, Israel, May 28, 2012.

(21) Seminar, Mittag-Leffler institute, Stockholm, Sweden, April 19, 2012.

(22) Colloquium, University of Michigan, April 10, 2012.

(23) Invited speaker: Workshop "Geometry and analysis of large networks", Nashville, TN, March, 2012.

(24) Invited speaker, "Geometric topology fair", KAIST, Korea, August 2011 (three lectures).

(25) Invited speaker, "Non-Linear Geometry of Banach Spaces, Geometric Group Theory, and Differentiability", Texas A& M, August 2011 (three lectures).

(26) Invited speaker, "3-Manifolds, Artin Groups and Cubical Geometry", CUNY, New York, August 2011.

(27) Invited speaker, "Dubrovnik topology conference", Dubrovnik, Chroatia, June 2011.

(28) Invited speaker, "Geometric group theory", Haifa, Israel, June 2011.

(29) Colloquium speaker, Technion, Haifa, Israel, June 2011.

(30) 1-hour invited talk at the Israeli Mathematical Society annual meeting, Ramat Gan, Israel, June 2011.

(31) Invited speaker, "Sofic groups", Workshop, Oberwolfach, Germany, May 2011.

(32) Invited speaker, "Group Actions on Measure Spaces", Texas A& M, College Station, March 2011.

(33) Invited speaker, "Embeddings", Workshop, Isaak Newton Institute, Cambridge, UK, January, 2011.

(34) Colloquium talk, Pennstate, State College PA, October, 2010.

(35) Invited speaker, "Actions and Invariants of Residually Finite Groups: Asymptotic Methods", workshop, Obervolfach, Germany, September, 2010.

(36) Invited speaker, "Geometric, asymptotic, combinatorial group theory with applications", workshop, CRM, Montreal, Canada, August 2010, minicourse.

(37) Invited speaker, "Geometric Group Theory, Hyperbolic Dynamics and Symplectic Geometry", workshop, Oberwolfach, Germany, July 2010.

(38) Invited speaker, "International Conference on Algebras and Lattices", Prague, Czech Republic, June 2010.

(39) Colloquium Speaker, 75 KAM Colloquium, Prague, Czech Republic, June, 2010.

(40) Invited speaker, "Non-positive Curvature and Geometric Structures in Group Theory", workshop, Oberwolfach, Germany, April, 2010.

(41) Invited speaker, "G^3" (Geometric Group theory on the Golf) conference, Pensacola, FL, March 2010.

(42) Plenary speaker, "Spring topology conference", Starkville, MS, March, 2010.

(43) Invited speaker, "Quasi-isometric rigidity in low dimensional topology", workshop in Banff, Canada, March 2010.

(44) Colloquium talk (Series "Action now"), Ben Gurion University, Beer Sheva, Israel, December, 2009.

(45) Invited speaker, Novi Sad Algebraic Conference 2009, Novi Sad, Serbia, August, 2009.

(46) Main speaker, Groups St Andrews 2009 in Bath, University of Bath, Bath, England, August 2009 (4 lectures).

(47) Invited speaker, "Affine Isometric Actions of Discrete Groups", Ascona, Switzerland, June 28-July 3, 2009.

(48) Colloquium speaker, University of Geneva, Geneva, Switzerland, May 28, 2009.

(49) Invited speaker, "International conference on geometric and combinatorial methods in group theory and semigroup theory", Lincoln, NE, May 2009.

(50) Invited speaker, "Moab topology conference", Moab, Utah, May 2009.

(51) The 33d William J. Spencer Lecture, Kansas State University (Manhattan, KS), November 6, 2008.

(52) Plenary talk at the Canadian Math. Society Winter Meeting in Ottawa (Canada), December, 2008.

(53) Invited 1-hour lecture at the AMS Sectional Meeting, Huntsville, AL, October, 2008.

(54) Minicourse "Asymptotic cones", St Sauveur, Canada, December 17-22, 2007.

(55) Invited speaker "Group theory and cryptography", Ottawa, December 13-16, 2007.

(56) Minicourse "Asymptotic group theory" (6 lectures), MSRI, October - December, 2007.

(57) Invited speaker, "Geometric group theory", Shanghai, China, August, 2007 (10 hours of lectures)

(58) Invited speaker, "Amenability", Schroedinger Institute, Wienna, Austria, July 2007.

(59) Invited speaker, "Linearization of groups and graphs", Lausanne, Switzerland, January 21-26, 2007.

(60) Invited speaker, ICM-2006, Madrid, Spain, August, 2006.

(61) Invited speaker, Wabash Functional Analysis seminar, November, 2006.

(62) Colloquium speaker: Univ. of Utah (October, 2006), IUPIU (November, 2006).

(63) Invited speaker, ICM satellite conference in Geometric and Asymptotic Group Theory with Applications", Manresa, September, 2006.

(64) Invited speaker, "Hyperbolic geometry Workshop", Fields Institute, Toronto, May, 2006.

(65) Invited speaker, "The property of rapid decay", AIM Institute, Palo Alto, January 2006.

(66) Invited speaker, Selfsimilar groups and conformal dynamics. AIM Institute, Palo Alto, June, 2006.

(67) Invited speaker, Workshop on Geometry and Group Theory, Max Planck Institute, Bonn (Germany), July, 2006.

(68) Invited speaker, Topological and Geometric Methods in Group Theory, Oberwolfach, Germany, April, 2006.

(69) Invited speaker, "Group theory and universal algebra", Jerusalem-Beersheva, Israel, December 20-22, 2005.

(70) Invited speaker, "One-day conference on Asymptotic Group Theory", The City College of New York, November 11, 2005.

(71) Invited speaker, "Geometric and asymptotic methods in group theory", Texas A& M, November, 2005.

(72) Invited speaker, "Flavors of groups", Banff, November, 2005.

(73) Three talks in MPI-Bonn (The Uberseminar, The uberseminar in topology and, the uberseminar in differential geometry), July-August 2005.

(74) Invited speaker, "K-theory and geometric group theory", Honolulu, HI, January, 2005.

(75) Invited speaker, "G^3, Geometric group theory on the Gulf", Destin, FL, November, 2004.

(76) Invited speaker, "Geometric group theory and K-theory", Kyoto, Japan, August, 2004.

(77) Invited Speaker, "Algebra Day", Ottawa, Canada, November, 2004.

(78) Invited speaker, "Geometric group theory", Newcastle, UK, June, 2004.

(79) Invited speaker, "Group theory and topology", Bedlevo, Poland, April, 2004.

(80) Invited speaker, International conference, "Thompson's group at 40 years", American Institute of Mathematics, Palo Alto, California, January, 2004.

(81) Invited speaker, International Workshop on Groups, Geometry and Dynamics, Technion, Haifa (Israel), January, 2004.

(82) Invited speaker, Journees de theorie geometrique des groupes, Grenoble (France), November, 2003.

(83) Invited speaker, Workshop in Combinatorics and Topology, Oberwolfach (Germany), November, 2003.

(84) Invited speaker, LMS Durham Symposium: Geometry and Cohomology in Group Theory, University of Durham, United Kingdom, July 2003.

(85) Colloquium speaker, Hebrew University, Jerusalem, June 2003.

(86) Colloquium speaker, Technion, Haifa, June 2003.

(87) Invited speaker, Semigroup theory and applications, Braga, Portugal, June 2003.

(88) Invited speaker, Group theory and dynamics, Lumini, France, July, 2002.

(89) Invited speaker, Semigroups, groups and automata (Rhodes fest), Porto, Portugal, June, 2002.

(90) Invited speaker, Group theory conference, Albany, October, 2001.

(91) Invited speaker, Conference on Algebra and Logic dedicated to the 100-th birthday of P.S. Novikov, Moscow, August, 2001.

(92) Invited speaker, International conference on algebra and logic, Hattington, Germany, August, 2001.

(93) Invited speaker, Topological methods in group theory, Oberwolfach, Germany, January 28-February 3, 2001.

(94) Invited speaker, WTC topology conference, Park City, Utah, November, 2000.

(95) Three-centennial lecture, Yale, September 2000.

(96) Invited speaker, Topology Festival, Cornell University, May 2000 (two lectures).

(97) Speaker, Uberseminar, Max Plank Institute, Bonn, June 29, 2000.

(98) Speaker, Topology seminar, Max Plank Institute, Bonn, June 26, 2000.

(99) Speaker, Seminar LABRI, University Paris-7, June 30, 2000.

(100) Invited speaker, International conference on geometric group theory and computation, Warwick, July, 1999.

(101) Invited speaker, International Conference on Combinatorial and computational algebra (ICCCA'99HK), Hong Kong University, May 1999.

(102) Speaker, special session on Geometric Groups Theory of the AMS meeting in Las Vegas, April 1999.

(103) Invited speaker, Spring Topology conference, Salt Lake City, Utah, March 18-20, 1999.

(104) Speaker, New York Group Theory seminar, October, 1998

(105) Speaker, Topology Seminar, University of Chicago, November, 1998.

(106) Invited speaker at the International conference in Computational and Geometric Aspects of Modern Algebra (CGAMA 98), Edinburgh, July 1998.

(107) Invited speaker at the International conference in computational methods in groups, Mt Holioke (MA), July, 1998.

(108) Speaker at the International conference on non-positive curvature, Nashville, TN, May 1998.

(109) Invited speaker at the International conference on Algorithmic problems in groups and semigroups, Lincoln (NE), May 1998.

(110) Speaker at the Group Theory Seminar, Yale University, November, 1997.

(111) Speaker at the New York Group Theory Seminar, November, 1997.

(112) Invited speaker at the International Congress in Algebras and Combinatorics, Hong Kong, August 1997.

(113) Invited speaker at the Semigroup Conference in St. Andrews, Scotland, July 1997.

(114) Invited speaker at the Amitsur algebra conference in Jerusalem, Israel, June 1997.

(115) Invited speaker at the Combinatorial group conference, Montreal, Canada, April, 1997

(116) Speaker at the Special Session of AMS on Infinite Group Theory, October, 1996.

(117) Speaker at the Geometric Group Theory Conference, Crete, Greece, August-September, 1996

(118) Invited speaker at the CRM Summer School on Group Theory, Banff, August, 1996.

(119) Invited speaker at the WTC topology conference, Park City, Utah, June 1996.

(120) Invited speaker at the International conference on Modern Algebra and its Applications, Nashville, May, 1996.

(121) Colloquium, Dept. of Mathematics, SUNY at Binghamton, May, 1996.

(122) Speaker at the Group Theory seminar, Dept. of Mathematics, SUNY at Binghamton, May, 1996 (two 1-hour talks).

(123) Speaker at the CCIS colloquium series, Lincoln (NE), February, 1996.

(124) Speaker at the Group Theory Conference, Albany (NY), October, 1995.

(125) Speaker at the international workshop on geometric methods in group theory (GASP-1995), Minneapolis (MN), August, 1995

(126) Speaker at the group theory seminar, Hebrew University of Jerusalem, Israel, July 1995.

(127) Speaker at the group theory seminar, Ben Gurion University, Israel, July 1995.

(128) Speaker at the algebraic systems seminar, Ekaterinburg, Russia, July 1995.

(129) Invited speaker at the international conference on Semigroups and Applications Including Semigroup Rings, St. Petersburg, Russia, June 1995.

(130) Speaker at the Group Theory Seminar, University of Marseille, France, June 1995.

(131) Speaker at the Mathematics Seminar, IHES, Paris, France, June 1995.

(132) Speaker at the Group Theory Seminar, University of Bordeaux, France, June 1995.

(133) Speaker at the Group Theory Seminar, LITP, University of Paris-6, France, May 1995.

(134) Speaker at the Group Theory Seminar, University of Illinois, Urbana-Champaign, September 1994.

(135) Speaker at the Group Theory Seminar, University of Melbourne, August, 1994.

(136) Speaker at the Group Theory Seminar, University of Canberra, July, 1994.

(137) Invited speaker at the International Conference on Semigroups, Automata and Languages, Porto, Portugal, June 1994 (one 20-minute and one 1 hour lectures)

(138) Speaker at the Group Theory Workshop at Rutgers University, March, 1994 (joint talk with E. Rips)

(139) Speaker at the New York City Group Theory seminar, CUNY, January, 1994.

(140) An organizer of the Special Session of AMS on Identities and Varieties of Algebras (College Station, TX, October 22-23, 1993, one lecture)

(141) Invited speaker at the NATO International Conference on Semigroups, Groups and Languages, York, England, August, 1993 (two one hour lectures).

(142) Invited speaker, Workshop on Category theory and universal algebra, MSRI, Berkeley, July 1993.

(143) Colloquium speaker at the University of California at Chico, April 1993

(144) Colloquium speaker at Marquette University, March 1993

(145) Invited speaker, AMS meeting, special session on semigroups, Springfield (Missouri) - April, 1992.

(146) Invited speaker at the International Alan Day conference on Universal Algebra in Hamilton (Ontario, Canada) - August, 1992 (two 1 hour talks).

(147) Speaker at the National Educational Computing Conference, Dallas, Texas, June, 1992 (joint talk with C.Friesen and G.Linetsky).

(148) Colloquium speaker at the Department of Computer Science of UNL, May, 1992.

(149) Colloquium speaker, University of Wisconsin-Madison, September, 1992

(150) Colloquium speaker, University of Wisconsin, Parkside, September, 1992

(151) Colloquium speaker, Iowa State University at Ames, September, 1992

(152) Invited speaker, Conference on semigroups and languages, Sydney (Australia), 1990.

(153) Invited speaker, Monash semigroups conference in honour of G. B. Preston, Monash University (Australia), 1990.

(154) Invited speaker, International conference on Universal algebra, Vienna, June, 1990.

(155) Invited speaker, Conference on Universal Algebra, Torun, Poland, May 1990.
(156) Invited speaker, Mal'cev algebra conference, Novosibirsk (Russia), 1989.
(157) Invited speaker, Summer School on Algebra, Chechoslovakia, September, 1989.
(158) Invited speaker, Berkeley workshop on monoids, Berkeley, CA, August 1989.
(159) Invited speaker, International conference on Universal algebra, Carlovy Vary, 1988
(160) Invited speaker, International conference on semigroups, Szeged, Hungary, August, 1987.

Mathematics Research Publications

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(2) (with Gili Golan) Divergence of Thompson groups. arXiv:1709.08144, 2017.
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(4) (with O. Kharlampovich, A. Myasnikov) Algorithmically complex residually finite groups, Bull. Math. Sci. 7 (2017), no. 2, 309–352.
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(115) (with E.A.Golubov) "Ideal extensions and commutative bands of residually finite semigroups", Izv. vuzov. Matematica, 1979, 7, p. 22-30.

(116) (with E.A.Golubov) Residual finiteness of some constructions of universal algebras in "Algebraic systems and their varieties", 1978, 121-132.

Professional activities related to education

Member of the Organizing committee of Mathcamp-2001.

Summers 2002, 2004 long term visiter of the Mathcamp.

Summer 2000, 2014 faculty at Mathcamp (a Summer program for mathematically gifted kids from the U.S.A. and Canada).

1995-present, Web based education: Linear Algebra WebNotes, the WebTests in Linear Algebra and Pre-calculus.

1995–1996, Director, Saturday Mathematics School for LPS students, grades 7–10, Lincoln.

June, 1992, Instructor at the Summer School for gifted minority children organized by the Omaha Public School and the department of Engineering of UNL.

1991–1993, Organizer and instructor of the Saturday Morning School For Young Programmers (joint venture of the department of Mathematics and Statistics of UNL and the Lincoln Public Schools). There have been 7 two-month sessions.

1978–1988, Organizer and director of the Sverdlovsk Winter Mathematical School.

1984–1989, Director of the Evening School for Young Programmers, Sverdlovsk.

1989–1990, Member of the All-Union Committee on Using Computers in Education, organized by the Ministry of Education of the USSR.

Educational Software

(1) "Linear Algebra WebTester, Houghton-Mifflin version", 2000
(2) "Pre-calculus WebTests including a Calculus Placement exam", 1999
(3) "Linear Algebra WebTests", 1996-1999
(4) "The WebTester", 1997
(5) "Web-based Math and Reading Challenges" for The Learning Co. Web site, 1997
(6) "Math. Processor" for Windows and Macintosh platforms, contract with The Learning Co., 1994
(7) Roo & Robby Teaching Environments, SchoolWorks, joint with E.Linetsky, S.Romanov, M.Stetsuk. DOS platform. Contract with the Soviet Ministry of Education, 1990, 1991.
(8) Software Support for the course "Basics of Informatics", Z80 platform, joint with V.Kljachin, S.Romanov, Ural State Pedagogical Institute, Contract with the Soviet Ministry of Education, 1986-1989.
(9) "Little people" teaching method: Physics for kids, joint with E.Linetsky, S.Romanov. State Pedagogical Institute, 1990. Z-80 platform

Web-Book in Linear Algebra and the WebTester

During the Spring semester of 1996 I wrote a Web-book on Linear Algebra containing a complete text of lectures, homework assignments with solutions, Maple examples, a discussion page, etc. The Web-book has the following URL:

http://www.math.vanderbilt.edu/~msapir/msapir/314.new.html

The Linear Algebra WebNotes is connected to the WebTester:

http://webtester.math.vanderbilt.edu:8080,

an engine for administering Web-based exams.

It generates exams (not from data-base), grades exams, and allows instructors to look at the students' results. Students can take an exam as many times as they want without getting the same question twice. Questions are non-multiple choice. An answer can be anything algorithmically checkable (a number, a function, a sequence of numbers, a sequence of functions, a sequence of elementary transformations of a matrix, etc.).

Textbooks in Computer Science for High School

All these books are in Russian.

(1) (with E.Linetsky, A.Gejn, V.Scholokhovich) "Osnovy Informatiki" ("Basics of Informatics"), textbook for 8-9 grades, 1994, Moscow, Prosveschenie Publ.
(2) (with E.Linetsky, A.Gejn, V. Zhitomirsky, V.Scholokhovich) "Osnovy Informatiki i vychislitel'noj tehniki" ("Basics of Informatics and Computer Technology"), textbook for 10-11 grades 1990, Moscow, Prosveschenie Publ (second edition, 1991, third edition 1992, fourth edition, 1994; total number of copies > 2,500,000
(3) (with A.Gejn, E.Linetsky, V.Scholokhovich) "Informatika v Zadachah (Informatics in Problems)", Shtiintsa publishing, Kishinev, Moldova, 1991 (A text-book for high schools).

(4) (with E.Linetsky, V. Zhitomirsky, A.Gejn, V.Scholokhovich) "Osnovy Infor-
matiki i vychislitel'noj tehniki" ("Basics of Informatics and Computer Tech-
nology") text-book for secondary schools (9-10 grades), 1989, Sverdlovsk,
Ural State Univ. Publ. (in Russian)

Other instructional materials

All instructional materials are in Russian.

(1) (with V.Zhitomirsky, V.Scholokhovich) "Elements of informatics", Sverdlovsk
Pedagogical Institute, 1985

(2) (with E.Linetsky), "Graphics of the ISKRA 226", Sverdlovsk Pedagogical
Institute, 1985

(3) (with V.Scholokhovich) "The use of BASIC in the course of informatics",
Sverdlovsk Pedagogical Institute, 1985

(4) (with V.Scholokhovich, Yu. Shumkov) "Algorithms in school", Sverdlovsk
Pedagogical Institute, 1985

(5) (with V.Zhitomirsky, E.Linetsky, V.Scholokhovich, A.Gejn) "Algorithms
and problem solving with a computer", Sverdlovsk Pedagogical Institute,
1986

(6) (with E.Linetsky, A.Gejn, V.Zhitomirsky, V.Scholokhovich) "Introduction
to informatics", Sverdlovsk Pedagogical Institute, 1986

(7) (with E.Linetsky) "School for young programmers", Sverdlovsk Pedagogical
Institute, 1987

(8) (with V. Scholokhovich, V. Zhitomirsky) "Studying the basics of informat-
ics at high school", Sverdlovsk, 1986

Refereed research articles on computer science K-12 education

All articles except #1, #2 are in Russian.

(1) The WebTester and the Linear Algebra WebNotes, Asynchronous Learning
Networks Magazine, Volume 3, Issue 1, July 1999.

(2) (with C.Friesen and E.Linetsky) "Algorithmic thinking and problem solv-
ing: Russian alternative to LOGO", Proceedings of the National Educa-
tional Computing Conference, June 15-17, Dallas, Texas, 1992, p. 192.

(3) (with E.Linetsky, A.Gejn, V.Zhitomirsky, V.Scholokhovich) "A courseware
for the school informatics I", Informatics and Education, 1988, no. 3, 11-25.

(4) (with E.Linetsky, A.Gejn, V.Zhitomirsky, V.Scholokhovich) "A courseware
for the school informatics II", Informatics and Education, 1988, no. 4, 9-18.

(5) (with E.Linetsky, A.Gejn, V.Zhitomirsky, V.Scholokhovich) "An introduc-
tion to computer science", Preprint, Sverdlovsk Pedagogical Institute, 1988,
p. 1-96

(6) (with E.Linetsky, A.Gejn, V.Scholokhovich) "Instructional materials for
the course of informatics (topics 1-3)", Preprint, Sverdlovsk Pedagogical
Institute, 1988, p. 1-84

(7) (with E.Linetsky, A.Gejn, V.Scholokhovich) "Informatics: how to solve
problems with a computer" Informatics and Education, 1989, no. 2, 11-16.

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rithms, executors", Informatics and Education, 1989, no. 3, 19-28.

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gorithms" Informatics and Education, 1989, no. 4, 7-14.

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structions", Informatics and Education, 1989, no. 5, 22-35.

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no. 5, 31-34.

Popular Newspaper and Journal Articles on Computer Science

In 1986 I edited a Computer Science column in the newspaper "Na smenu!" ("For Change!"). Articles published there were used by teachers throughout Sverdlovsk region in Russia as instructional materials. The newspaper published explanatory articles, problems in Computer Science, solutions, etc. More than 1000 high school students participated in this "school by correspondence".

There are two articles of mine in "Kwant" (the Russian analogue of the American Mathematical Monthly), and one problem in the American Mathematical Monthly

(1) The Decimal Expansions of Powers of 9: 10758. Amer. Math. Monthly 108 (2001), no. 10, 977–978.
(2) (with A.G.Gejn and S.Koval'dgy) "Problems and models", Kwant, 1989, no. 4. (in Russian)
(3) (with A.Belov) "Periodicity in mathematics", Kwant, 1990, no. 4. (in Russian)