

PROFESSOR ALEXANDRE V. BOROVIK

School of Mathematics
University of Manchester
Manchester M13 9PL
United Kingdom

Phone: +44 (0)161 306 3645
Fax: +44 (0)161 275 5819
borovik@manchester.ac.uk
www.maths.manchester.ac.uk/~avb/

Personal	Born: 1956 in Republic of Buriatia, Russia Nationality: British	
Education	INSTITUTE OF MATHEMATICS, MINSK PhD in Mathematics	1982
	NOVOSIBIRSK STATE UNIVERSITY MSc in Mathematics	1978
Membership	London Mathematical Society — Trustee and Council Member from 2007 — Programme Committee, Research Meetings Committee American Mathematical Society European Mathematical Society Association for Symbolic Logic Association for Learning Technology Fellow of Higher Education Academy	
Appointments	Professor of Pure Mathematics, University of Manchester Professor of Pure Mathematics, UMIST. Reader, Department of Mathematics, UMIST Lecturer, Department of Mathematics, UMIST Visiting Associate Professor, Rutgers University Visiting Associate Professor, University of California, Irvine Associate Professor (half time position), Omsk University, Russia Assistant Professor (half time position), Omsk University, Russia Research Fellow, Russian Academy of Sciences, Omsk, Russia	2004- 1998-04 1996-98 1992-95 1991-92 1990-91 1982-90 1980-82 1978-91
Awards	The Royal Society Leverhulme Trust Senior Research Fellowship	2000-01
Editorship	Journal of Group Theory	

Research

- Research Interests**
- Combinatorics (matroids; combinatorial structures related to Coxeter groups).
 - Group theory (probabilistic and non-deterministic methods in group theory, including black box recognition of finite groups; complexity of algorithms).
 - Model theory (classification of simple groups of finite Morley rank).
 - Philosophy of mathematics and cognitive aspects of mathematics.
- Principal Results**
- Combinatorics:** development of the theory of Coxeter matroids (a series of papers and a book with I. M. Gelfand and N. White).
- Model Theory:** Classification of simple groups of finite Morley rank and even type (a series of papers and a book with T. Altinel and G. Cherlin).
- Group Theory:** Centraliser of involutions method in black box recognition of finite groups.
- For a list of publications, see pages 11–14.
- Invited Plenary Talks on Mathematics, 2000–**
- SYMPOSIUM ON MATHEMATICAL PRACTICE AND COGNITION 2010
 De Montfort University, Leicester, 29–30 March 2010
 “Little green men from Mars and other thought experiments in philosophy of mathematics.”
- TWO STREAMS IN THE PHILOSOPHY OF MATHEMATICS. 2009
 RIVAL CONCEPTIONS OF MATHEMATICAL PROOF.
 University of Hertfordshire, Hatfield, 1–3 July 2009
 “Above the streams: the philosophy of mathematics as seen by a mathematician.”
- GROUPS AND MODELS: CHERLIN BAYRAMI
 Istanbul 8–12 June 2009
 “Black box groups, profinite groups, groups of finite Morley rank”
- ANTALYA ALGEBRA DAYS XI
 Antalya 20–24 May 2009
 “What is an ultraproduct?”
- MAGIC POSTGRADUATE CONFERENCE
 Manchester, 13 Jan 2009
 “Why should mathematicians care about philosophy of mathematics”
- MODNET BARCELONA CONFERENCE 2008
 Barcelona, 3–7 Nov 2008
 “Generic automorphisms of simple groups of finite Morley rank”
- GEOMETRIC AND ANALYTIC METHODS IN GROUP THEORY
 Bristol, 12 May 2008
 “Probabilistic recognition of black box groups” .
- GROUPS AND GEOMETRIES
 Oberwolfach, Germany, 25 April 2008
 “Model theory of black box groups” .

CHAT YIN HO MEMORIAL CONFERENCE

Gainesville, Florida, USA, Feb 2008

"From here to infinity: (finite) black box groups and (infinite) groups of finite Morley rank".

PERMUTATION GROUPS

2007

Oberwolfach, Germany, 7 Aug 2007

"Permutation groups of finite Morley rank".

MODEL THEORY

Oberwolfach, Germany, 15-19 Jan 2007

"Permutation groups of finite Morley rank".

ANTALYA ALGEBRA DAYS IX

Antalya, Turkey, May 2007

"Black box groups and groups of finite Morley rank".

ACID07 – ALGORITHMS AND COMPLEXITY IN DURHAM

Durham, UK, 18 September 2007

"Black box groups – between proof and computation".

LOGICUM LUGDUNENSIS

2006

Lyon, France, 22-24 June 2006

"Linear groups of finite Morley rank".

MODNET ANTALYA CONFERENCE

Antalya, Turkey, 2-11 November 2006

"Permutation groups of finite Morley rank".

LMS SPITALFIELDS DAY - GROUPS OF FINITE MORLEY RANK

2005

Isaac Newton Institute, Cambridge, UK, 16 March 2005

"Finite Group Theory: The Next Generation".

ACID.2005 – ALGORITHMS AND COMPLEXITY IN DURHAM

Durham, UK, 9 July 2005

"Stratification of complexity of algorithmic problems in combinatorial group theory".

COMBINATORIAL GEOMETRY AND APPLICATIONS

Centre International de Rencontres Mathématiques, Luminy, Marseilles, France

November 7 – 11, 2005

"The language of Coxeter matroids".

EUROGP 2004

2004

Coimbra, Portugal, 5-7 April 2004

"Coevolution of algorithms and deterministic solution of equations in free groups".

THE COXETER LEGACY: REFLECTIONS AND PROJECTIONS

University of Toronto, Toronto, Canada, May 2004

"Coxeter matroids".

GEOMETRIC GROUP THEORY

Newcastle, UK, 29 June – 1 July 2004

"The Andrews-Curtis Conjecture and Finite Groups"

GROUPES, GÉOMÉTRIE ET LOGIQUE

Centre International de Rencontres Mathématiques, Luminy, Marseilles, France

27 September – 1 October 2004

"Classification of Simple Groups of Finite Morley Rank: Lessons Learned"

- and
 "Some Problems on Groups of Finite Morley Rank".
- COMBINATORICS IN OPORTO 2003
 Oporto, Portugal, 15-17 Sept 2003
 "Matroids and Coxeter Groups".
- GROUPS AND PROBABILITY
 Budapest, Hungary, 1-4 July 2003
 "Nondeterministic aspects of the theory of infinite groups".
- 19TH BRITISH COMBINATORIAL CONFERENCE
 Bangor, UK, June 2003
 "Matroids and Coxeter Groups".
- COMBINATORIAL, GEOMETRIC, AND DYNAMICAL ASPECTS OF INFINITE GROUPS
 Gaeta, Italy, 1-6 June 2003
 "Complexity of the conjugacy problem in amalgamated products".
- GROUPS AND MODEL THEORY
 Leeds, UK, April 2003
 "Non-deterministic group theory: languages and complexity".
- GROUPS AND COMPUTATION
 Columbus, Ohio, USA, March 2003
 "Probability measures and computational complexity".
- GROUPS AND GEOMETRIES 2002
 Oberwolfach, Germany, September 2002
 "Black box groups and the Andrews-Curtis Conjecture"
- NEW YORK CITY LOGIC CONFERENCE II
 New York, USA, April 2002
 "Groups of finite Morley rank".
- INTERNATIONAL CONFERENCE ON MODERN ALGEBRA
 Vanderbilt University, Nashville, USA, May 2002
 "Non-deterministic methods in group theory".
- ALGEBRA AND COMPUTER SECURITY 2001
 New York, USA, November 2001
 "Black box groups".
- BRITISH LOGIC COLLOQUIUM
 Manchester, UK, September 2001
 "Classification of simple groups of finite Morley rank and even type".
- LMS SYMPOSIUM GROUPS, GEOMETRY AND COMBINATORICS
 Durham, UK, July 2001
 "Geometry and identification theorems for groups of finite Morley rank".
- THE JOINT MEETING OF AMS/SMF
 Lyon, France, July 2001
 "Classification of simple groups of finite Morley rank and even type".
- ANTALYA ALGEBRA DAYS III
 Antalya, Turkey, 16-20 May 2001
 "Probabilistic and non-deterministic methods in algebra".

ANTALYA ALGEBRA DAYS II
 Antalya, Turkey, 17–21 May 2000
 “Some open problems”.

2000

MODEL-THEORETIC ALGEBRA AND ALGEBRAIC METHODS OF COMPUTATION
 Edinburgh, UK, 4–15 September 2000
 “Probabilistic and non-deterministic computations in finite groups”.

LA CAVE DES GROUPEs
 Lyon, France, 2–5 November 2000
 “Classification of simple groups of finite Morley rank and even type”.

PROBABILISTIC METHODS IN GROUP THEORY
 CUNY, New York, USA, 6 December 2000
 “Black box groups”.

**Seminars and
 Colloquia
 Given, 2000–**

- 2010 – Universite Paris VII
 – Logic Seminar, University of Oxford
 – Manchester University
 – Durham University
 – University of Leeds
- 2009 – Research Seminar, School of Systems Engineering, University of Reading
 – Mathematics Colloquium, Boğaziçi University, Istanbul, Turkey
 – Mathematics Colloquium, Bilgi University, Istanbul, Turkey
 – Centre for Reasoning, University of Kent
 – Isaac Newton Institute, Cambridge
 – Manchester University
 – Warwick University.
- 2008 – Model Theory Seminar and Logic Seminar, Universite Paris VII
 – Séminaire “Des Mathématiques”, l’Ecole Normale Supérieure, Paris, France;
 – seminar “Géométrie & Théorie des Modèles”, l’Ecole Normale Supérieure Paris, France.
- 2007 Middle East Technical University, Ankara, Turkey; University of Leeds; CHSTM, University of Manchester.
- 2006 Middle East Technical University, Ankara, Turkey; Universidade do Porto (Portugal); London Algebra Colloquium.
- 2005 Algebra Seminar, DPMMS, Cambridge; Isaac Newton Institute, Cambridge; Algebra Seminar, Oxford University; Combinatorics Seminar, Universite Paris VI; University of Newcastle; Logic Seminar, Universite Paris VI; Colloquium, Institut Girard Desargues (Universite Lyon 1), Lyon, France; Logic Seminar, Institut Girard Desargues (Universite Lyon 1), Lyon, France.
- 2004 Combinatorics Seminar, Universite Paris VI; London Algebra Colloquium; Model Theory Seminar, Oxford University; Universidade do Porto (Portugal); University of Giessen (Germany); NEGGTN Meeting, Nottingham; University of Birmingham; Model Theory Seminar, Universite Paris VII.
- 2003 Pennsylvania State University, USA; McGill University, Montreal, Canada; Colloque de Mathématiques CRM-ISM, Montreal, Canada; University of Birmingham, UK; Institut Girard Desargues (Universite Lyon 1), Lyon, France; University of Newcastle; University of Leicester; Rutgers University, USA; Manchester Algebra Seminar.
- 2002 Manchester Dynamics Seminar; University of Bielefeld (Germany).
- 2001 University of East Anglia, Norwich (UK); University of Newcastle, University of South Pacific (Fiji); Royal Holloway College (UK).

2000 London Algebra Seminar (Imperial College), Oxford; Universidade do Porto (Portugal); Graduate Centre, CUNY, New York.

**Major
Academic
Visits, 1997–**

2009 Visiting Fellow, Isaac Newton Institute, Cambridge, January-February.

2005 Visiting Fellow, Isaac Newton Institute, Cambridge, February-April.

2005 Visiting Researcher, Universite Paris VI, June.

2003 Visiting Professorship, Institut Girard Desargues (Universite Lyon 1), Lyon, France.

2000 Visiting Professorship, Institut Girard Desargues (Universite Lyon 1), Lyon, France.

1998 Visiting member, MSRI, Berkeley, USA, January.

1998 Visiting member, IHES, Bures-sur-Yvette, France, February-March.

1997 Visiting member, Fields Institute, Toronto, Canada, January.

Teaching and Educational Activities

University Teaching	<p>UNDERGRADUATE COURSES TAUGHT from 1979 Calculus, Advanced Calculus, Differential Equations, Linear Algebra, Probability and Statistics, Analytic Geometry with Tensor Analysis, Number Theory, Number Theory and Cryptography, Logic, Discrete Mathematics, Group Theory, Coding Theory, Mathematical Education.</p> <p>COMPUTER BASED TEACHING 1994 – 04 Courses in Elementary Logic based on software packages SYMLOG and TARSKI'S WORLD, and a course Number Theory and Cryptography based on computer experiments with MATLAB.</p> <p>POSTGRADUATE COURSES TAUGHT from 1980 Model Theory, Multilinear Algebra, Symmetric Spaces, Linear Algebraic Groups, Classical Groups, Reflection Groups.</p> <p>POSTGRADUATE SUPERVISION Seven students supervised or co-supervised by me have received their Ph.D.: Ayşe Berkman (1998), Christine Altseimer (1998), Richard Booth (1999), Matt Craven (2005), George Petrides (2006), Şükrü Yalçınkaya (2007), Pınar Uğurlu (2009). A number of successful M.Sc. and M. Phil. dissertations in Combinatorics, Algebra, Applied Combinatorics, Cryptography and Mathematical Education.</p> <p>CURRICULUM DEVELOPMENT 2002 Curriculum Innovation Award from University of Manchester and UMIST.</p>
Grants for Education Research	<p>THE JOHN TEMPLETON FOUNDATION 2008 – 10 By-invitation-only grant for a research project in philosophy and methodology of mathematics, "A Dialogue on Infinity".</p>
Membership of Professional Organisations	<ul style="list-style-type: none"> • Fellow of Higher Education Academy. • British Society for Research into Learning Mathematics. • London Mathematical Society. • Association for Learning Technology. • British Logic Colloquium. • Mathematical Association of America. • American Mathematical Society. • Association of Symbolic Logic. • Association Computability in Europe. • British Society for the History of Mathematics.
Conferences Related to Teaching	<p>BRITISH CONGRESS OF MATHEMATICAL EDUCATION 2010 University of Manchester. Sectional talk "Childhood stories of mathematics".</p> <p>FOUNDATIONS OF THE FORMAL SCIENCES VII. BRINGING TOGETHER PHILOSOPHY AND SOCIOLOGY OF SCIENCE 2008 Vrije Universiteit Brussel, 21–24 October 2008. Talk "Science wars: a time for a truce".</p>

	NEW DIRECTION IN PHILOSOPHY OF MATHEMATICS MIMS Workshop, Manchester, 4 October 2008. Co-organiser.	2008
	ARTS MEET SCIENCE Jodrell Bank, 23 September 2008. Talk "Social Life of Infinity: from Mathematics to Kitsch".	2008
	IS MATHEMATICS SPECIAL? (PHIMSAMP 3, PHILOSOPHY OF MATHEMATICS, SOCIOLOGICAL ASPECTS AND MATHEMATICAL PRACTICE) University of Vienna, Vienna, Austria, 16–18 May 2008 Talk "Metamathematics of elementary mathematics".	2008
	THE TEACHING–RESEARCH INTERFACE: IMPLICATIONS FOR PRACTICE IN HE University of Stirling, UK, 29–30 April 2008 Talk "Didactic transformation in mathematics teaching".	2008
	MATHEMATICIANS AND MATHS EDUCATIONALISTS: HOW CAN WE COLLABORATE? Mathematics Institute, University of Warwick, UK, 19 March 2008 Keynote talk "Didactic transformation".	2008
	EUROPEAN MATHEMATICAL PSYCHOLOGY GROUP Luxembourg, 10-13 Sep 2007 Talk "From mathematical psychology to psychology of mathematics"	2007
	MATHEMATICAL THINKING: AN INTERDISCIPLINARY APPROACH Nottingham, 21-22 Nov 2007 Keynote talk: "Mathematical thinking as experienced by a mathematician"	2007
	WORLD FEDERATION OF NATIONAL MATHEMATICS COMPETITIONS CONFERENCE Cambridge, 25 July 2006 Keynote talk, "Mathematical abilities and mathematical skills"	2006
	WHERE WILL THE NEXT GENERATION OF UK MATHEMATICIANS COME FROM? Manchester, 18-19 March 2005 Co-organiser Conference website: http://www.maths.manchester.ac.uk/avb/wherefrom.html	2005
Seminars and Colloquia on Teaching and Methodology of Mathematics	UNIVERSITY OF LEEDS Mathematics Colloquium "Hidden structures of elementary mathematics"	2010
	BOĞAZIÇI UNIVERSITY Istanbul, Turkey Mathematics Colloquium Talk "Eternity forever: social life of Infinity"	2009
	MID-EASTERN TECHNICAL UNIVERSITY Ankara, Turkey General Seminar of Mathematics Department Talk "Eternity forever: social life of Infinity"	2009
	BILGI UNIVERSITY, ISTANBUL Computer Science Colloquium Talk "Hidden abstract structures of elementary mathematics"	2009
	L'ECOLE NORMALE SUPÉRIEURE, PARIS Séminaire "Des Mathématiques" Talk "Ubiquity and uniqueness: everyday mathematics from a model-theoretic perspective".	2008

	CENTER FOR HISTORY OF SCIENCE, MEDICINE AND TECHNOLOGY University of Manchester Talk "History of mathematics as seen by a mathematician".	2007
	MID-EASTERN TECHNICAL UNIVERSITY Ankara, Turkey General Seminar of Mathematics Department Talk "Elementary mathematics as seen by a mathematician".	2007
	UNIVERSITY OF BIRMINGHAM Talk "Metamathematics of Elementary Mathematics".	2007
Advisory Work	GLASGOW UNIVERSITY, UK External Examiner for degree programmes in Pure Mathematics.	2007–10
	ACADEMIC COUNCIL OF NESIN MATHEMATICS VILLAGE, ŞIRINCE, TURKEY Member of the Council.	2007
	UNIVERSITY OF SOUTH PACIFIC, FIJI Visiting Scholar/Consultant under the auspices of the Third World Academy of Sciences Programme run by the Abdus Salam International Centre for Theoretical Physics (Trieste, Italy).	2001
Teaching Visits	SUMMER SCHOOL 2009 TMD 3 week course <i>Metamathematics of Elementary Mathematics</i> to a select group of Turkish undergraduate students. August 2009, Şirince, Turkey.	2009
	MIDEASTERN TECHNICAL UNIVERSITY Ankara, Turkey Series of masterclasses given under provisions of the Erasmus Teaching Mobility Programme, April 2009.	2009
	SUMMER SCHOOL 2008 TMD 3 week course <i>Metamathematics of Elementary Mathematics</i> to a select group of Turkish undergraduate students. July-August 2008, Şirince, Turkey.	2008
	SUMMER SCHOOL 2007 TMD Summer School 2007 TMD Yazokulu Duyurusu, Sirince, Turkey: giving a 2 week crash course <i>Reflection Groups</i> to a select group of Turkish undergraduate students. July 2007, Şirince, Turkey.	2007
Blogs on Teaching and Methodology of Mathematics	MATHEMATICS UNDER THE MICROSCOPE http://www.micromath.wordpress.com A DIALOGUE ON INFINITY http://dialinf.wordpress.com/	
Book	MATHEMATICS UNDER THE MICROSCOPE: NOTES ON COGNITIVE ASPECTS OF MATHEMATICAL PRACTICE. Amer. Math. Soc., Providence, RI. 317 pp. ISBN-10: 0-8218-4761-9. ISBN-13: 978-0-8218-4761-9. Available from http://www.ams.org/bookstore-getitem/item=mbk-71 .	2010

Administrative work

Administrative work	<p>MEMBER OF THE FACULTY COMMITTEE Faculty of Engineering and Physical Sciences, University of Manchester</p> <p>MEMBER OF MANCHESTER INSTITUTE FOR MATHEMATICAL SCIENCES COMMITTEE</p> <p>HEAD OF PURE MATHEMATICS GROUP</p> <p>THE MERGING UNIVERSITIES Development of the new School of Mathematics in the new merged University of Manchester: I was the Research Coordinator in the Interim School Leadership Team and chaired the School's Research Working Group.</p> <p>CHAIRMAN OF THE DEPARTMENTAL ACADEMIC BOARD</p> <p>HEAD OF PURE MATHEMATICS GROUP Department of mathematics, UMIST.</p>	<p>2007–09</p> <p>2004–07</p> <p>2004–05</p> <p>2003–04</p> <p>2003–04</p> <p>1998, 2000</p>
External work	<p>THE ASSOCIATION FOR LEARNING TECHNOLOGY — Member of Research Committee</p> <p>LONDON MATHEMATICAL SOCIETY — Trustee and Council Member — Member of Programme Committee, Research Meetings Committee (2007–10) — Member of Education Committee (since 2010)</p> <p>UNIVERSITY OF GLASGOW External Examiner</p>	<p>2009–12</p> <p>2007–10</p> <p>2007–10</p>

Publications

Books Authored

- 2010 Mathematics under the Microscope: Notes on Cognitive Aspects of Mathematical Practice. Amer. Math. Soc., Providence, RI. 317 pp. ISBN-10: 0-8218-4761-9. ISBN-13: 978-0-8218-4761-9. Available from <http://www.ams.org/bookstore-getitem/item=mbk-71>.
- 2009 Mirrors and Reflections. The Geometry of Finite Reflection Groups. Springer, 2009. xii + 172 pp., 72 illus. (With Anna Borovik.) ISBN 978-0-387-79065-7.
- 2008 Simple Groups of Finite Morley Rank, Amer. Math. Soc. Monographs Series, Amer. Math. Soc., Providence, RI. Approx. 556 pp. ISBN-10: 0-8218-4305-2, ISBN-13: 978-0-8218-4305-5 (with T. Altınel and G. Cherlin).
- 2003 Coxeter Matroids, Birkhäuser, xiv+264 pp., ISBN 0-8176-3764-8 (with I. M. Gelfand and N. White).
- 1994 Groups of Finite Morley Rank, Oxford University Press, xi+409 pp. (with A. Nesin).

Books Edited

- 2005 Groups, Languages, Algorithms, vol. 378 of Contemporary Mathematics, AMS, 348 pp., ISBN 0-8218-3618-8.
- 2004 Computational and Experimental Group Theory, vol. 349 of Contemporary Mathematics (co-editor, with A. G. Myasnikov), AMS, ISBN 0-8218-3483-5.
- 1995 Finite and Locally Finite Groups, Dordrecht, Kluwer Academic Publishers (NATO ASI Series C: Mathematical and Physical Sciences, vol. 471), xii+458 pp. (co-editor, with B. Hartley, G. Seitz and R. M. Bryant).

Peer Refereed Papers on Mathematics

1. Is mathematics special? In PhiMSAMP. Philosophy of Mathematics: Sociological Aspects and Mathematical Practice (Eds. Benedikt Löwe, Thomas Müller). College Publications, London, 2010. Texts in Philosophy 11; pp. 1–27.
2. Permutation groups of finite Morley rank, in Model theory with Applications to Algebra and Analysis Vol. 2 (Eds. Zoe Chatzidakis, Dugald Macpherson, Anand Pillay, Alex Wilkie) London Math Soc. Lecture Note Series No. 350, Cambridge Univ Press 2008, pp. 59–124. ISBN-13: 9780521709088. (With G. Cherlin.)
3. Uniqueness cases in odd-type groups of finite Morley rank, J. London Math. Soc. 77 (2008) 240–252. (With J. Burdges and A. Nesin.) doi:10.1112/jlms/jdm106
4. A generic identification theorem for L^* -groups of finite Morley rank, J. Algebra 319 (2008) 50–76. (With A. Berkman, J. Burdges and G. Cherlin.)
5. A new trichotomy theorem for groups of finite Morley rank, J. London Math. Soc. 77 (2008) 1–14. (With J. Burdges.) doi:10.1112/jlms/jdm088.
6. Linear groups of finite Morley rank, J. Inst. Math. Jussieu 7 no. 4 (2008) 641–651.
7. Generic complexity of the conjugacy problem in HNN-extensions and algorithmic stratification of Miller's groups, Internat. J. of Algebra and Computation 17 nos. 5-6 (2007) 963–997. (With A. G. Myasnikov and V. N. Remeslennikov.)
8. Involutions in groups of finite Morley rank of degenerate type, Selecta Math. 13 no. 1 (2007) 1–22. (With J. Burdges and G. Cherlin.) DOI 10.1007/s00029-007-0030-z.
9. Simple groups of finite Morley rank of unipotent type, in "Algebra, Logic, Set Theory. Festschrift für Ulrich Felgner zum 65. Geburtstag" (B. Lowe, ed.). Studies in Logic 4 (2007) 44–61. ISBN 1-904987-28-1. (With J. Burdges and G. Cherlin.)
10. The conjugacy problem in amalgamated products I: Regular elements and black holes, Internat. J. Algebra and Computation 17, No. 7 (2007) 1299–1333. (With A. G. Myasnikov and V. N. Remeslennikov.)

11. Conjugacy problem in HNN extensions: regular elements and black holes // Combinatorial methods in algebra and computational complexity. – Herald of Omsk University, special issue. - OmsU, 2007, pp. 5–83. (With A. G. Myasnikov and V. N. Remeslennikov.)
12. Coxeter theory: cognitive aspects, in "The Coxeter Legacy: Reflections and Projections", (C. Davis and E.W. Ellers, Eds.), Fields Institute Communications. Ser. no. 46 (2006), Amer. Math. Soc. pp. 17–43. ISBN 0-8218-3722-2.
13. Quotient tests and random walks in computational group theory, in "Topological and Asymptotic Aspects of Group Theory" (R. I. Grigorchuk et al., eds.), Contemp. Math. 394 (2006) (with A. G. Myasnikov).
14. Lagrangian pairs and Lagrangian orthogonal matroids, European J. Combinatorics 26 no. 7 (2005) 1023–1032 (with R. F. Booth and N. White).
15. The finitary Andrews-Curtis conjecture, Progress in Maths. 248 (2005) 15–30 (with A. G. Myasnikov and A. Lubotzky).
16. A generic identification theorem for groups of finite Morley rank, J. London Math. Soc. (2) 69 (2004) 14–26 (with A. Berkman).
17. Genetic algorithms and equations in free groups and semigroups, in "Computational and Experimental Group Theory", Contemp. Math. 349 (2004) 63–81 (with R. F. Booth and D. Y. Bormotov).
18. Coevolution of algorithms and deterministic solutions of equations in free groups, in "Genetic Programming. 7th European Conference, EuroGP 2004. Coimbra, Portugal, April 2004" (M. Keijzer et al., eds.) Lecture Notes Comp. Sci. vol. 3003, Springer-Verlag, 2004, pp. 11–22 (with R. F. Booth).
19. Classification of simple K^* -groups of finite Morley rank and even type: geometric aspects, in "Groups, Combinatorics and Geometry: Durham 2001", (A. A. Ivanov, M. W. Liebeck and J. Saxl, eds.), World Scientific, Singapore, 2003, pp. 1–12 (with T. Altinel and G. Cherlin).
20. Matroids and Coxeter groups, in "Surveys in Combinatorics 2003" (C. D. Wenseley, ed.), London Math. Soc. Lect. Note Ser., vol. 307, Cambridge University Press, 2003, pp. 79–114.
21. An identification theorem for groups of finite Morley rank and even type, J. Algebra 266 (2003) 375–381 (with A. Berkman).
22. Parabolic 2-local subgroups in groups of finite Morley rank and even type, J. Algebra 269 (2003) 250–262 (with T. Altinel, G. Cherlin and L.-J. Corredor).
23. The Andrews-Curtis conjecture and black box groups, Int. J. Algebra Comp. 13 no. 4 (2003) 415–436 (with E. I. Khukhro and A. G. Myasnikov); math.GR/0110246.
24. Multiplicative measures on the free group, Int. J. Algebra Comp. 13 no. 6 (2003) 705–731 (with A. G. Myasnikov and V. N. Remeslennikov); math.GR/0204070.
25. Pushing up and a global $C(G,T)$ -theorem for groups of finite Morley rank, J. Algebra 247 (2002) 541–576 (with T. Altinel and G. Cherlin).
26. On the topology of the combinatorial flag varieties, Discrete and Computational Geometry 27, no. 2 (2002) 195–214 (with I. M. Gelfand and D. A. Stone).
27. Centralisers of involutions in black box groups, in "Computational and Statistical Group Theory" (R. Gilman, A. Myasnikov, V. Shpilrain, eds.), Contemporary Mathematics 298 (2002), 7–20; math.GR/0110233.
28. Measuring sets in infinite groups, in "Computational and Statistical Group Theory" (R. Gilman, A. Myasnikov, V. Shpilrain, eds.), Contemporary Mathematics 298 (2002) 21–42 (with A. G. Myasnikov and V. Shpilrain).
29. Representations of matroids in semimodular lattices, European J. Combinatorics 22 (2001) 789–799 (with I. M. Gelfand and N. White).

30. Probabilistic recognition of orthogonal and symplectic groups, in "Groups and Computation III" (W. Kantor and A. Seress, eds.), de Gruyter, Berlin, 2001, pp. 1–20 (with C. Altseimer).
31. Oriented Lagrangian matroids, *European J. Combinatorics* 22 (2001), 639–656 (with R. F. Booth, I. M. Gelfand and N. White).
32. Lagrangian matroids and cohomology, *Annals Combinatorics* 4 (2000) 171–182 (with R. F. Booth, I. M. Gelfand and D. A. Stone).
33. Combinatorial flag varieties, *J. Combinatorial Theory (A)* 91 (2000) 111–136 (with I. M. Gelfand and N. White).
34. Groups of finite Morley rank and even type with strongly closed abelian subgroup, *J. Algebra* 232 (2000) 420–461 (with T. Altinel and G. Cherlin).
35. On groups of finite Morley rank with weakly embedded subgroups, *J. Algebra* 211 (1999) 409–456 (with T. Altinel and G. Cherlin).
36. An adjacency criterion for Coxeter matroids, *J. Algebraic Combinatorics* 9 (1999) 271–280 (with A. Vince).
37. Matroid homology, in "The Gelfand Mathematical Seminars, 1996-1999" (I. M. Gelfand and V. S. Retakh, eds.), Birkhauser, 1999, pp. 1–13, ISBN 0-8176-4013-4 (with T. V. Alekseyevskaya, I. M. Gelfand and N. White).
38. Exchange properties for Coxeter matroids and oriented matroids, *Discrete Math.* 179 (1998) 59–72 (with I. M. Gelfand and N. White).
39. Symplectic matroids, *J. Algebraic Combinatorics* 8 (1998) 235–252, (with I. M. Gelfand and N. White).
40. Tame groups of odd and even type, in 'Algebraic Groups and their Representations,' R. W. Carter and J. Saxl, eds., (NATO ASI Series C: Mathematical and Physical Sciences, vol. 517), Kluwer Academic Publishers, Dordrecht, 1998, pp. 341–366.
41. On the number of maximal soluble subgroups of a finite group, *Communications in Algebra*, 26 no. 12 (1998) 4041–4050.
42. Groups of mixed type, *J. Algebra* 192 (1997) 524–571 (with T. Altinel and G. Cherlin).
43. The lattice of flats and its underlying flag matroid polytopes, *Annals Combinatorics* 1 (1997) 17–26 (with I. M. Gelfand, A. Vince and N. White).
44. Coxeter matroid polytopes, *Annals Combinatorics* 1 (1997) 123–134 (with I. M. Gelfand and N. White).
45. Boundaries of Coxeter matroids, *Advances Math.* 120 (1996) 258–264 (with I. M. Gelfand and N. White).
46. Maximal subgroups in finite and profinite groups, *Trans. Amer. Math. Soc.* 348 (1996) 3745–3761 (with L. Pyber and A. Shalev).
47. Matroid maps, *Commun. Omsk Univ.* No. 1 (1996) 12–13.
48. Locally finite groups of finite Morley rank and odd type, in 'Finite and Locally Finite Groups,' Dordrecht, Kluwer Academic Publishers (NATO ASI Series C: Mathematical and Physical Sciences, vol. 471), 1995, pp. 243–280.
49. Coxeter groups and matroids, in 'Groups of Lie types and Their Geometries, Como 1993,' London Math. Soc. Lect. Notes Ser. 207 (1995), Cambridge University Press, pp. 13–34 (with K. S. Roberts).
50. On generic normal subgroups, in 'Automorphisms of First-Order Structures,' R. Kaye and D. Macpherson, ed., Oxford University Press, 1994, pp. 319–324 (with S. Thomas).
51. WP-matroids and thin Schubert cells on Tits systems, *Advances Math.* 103 (1994) 162–179 (with I. M. Gelfand).
52. Schur-Zassenhaus theorem revisited, *J. Symbolic Logic* 59 (1994), 283-291 (with A. Nesin).

53. On a class of doubly transitive omega-stable groups, *J. Algebra* 165 (1994), 245–257 (with M. DeBonis and A. Nesin).
54. CIT groups of finite Morley rank, I, *J. Algebra* 165 (1994) 258–272 (with M. DeBonis and A. Nesin).
55. CIT groups of finite Morley rank, II, *J. Algebra* 165 (1994) 273–294 (with A. Nesin).
56. Matroids on chamber systems, *Publ. du LaCIM* 14 (1993) 27–62 (with I. M. Gelfand).
57. On the Schur-Zassenhaus theorem for groups of finite Morley rank, *J. Symbolic Logic* 57 (1992) 1469–1477 (with A. Nesin).
58. A maximal subgroup in the simple finite group $E_8(q)$, *Contemporary Mathematics*, 131, Part 1 (1992) 67–79.
59. Some remarks on the structure of finite subgroups of simple algebraic groups, in 'Groups, Combinatorics and Geometry: Durham 1990,' *London Math. Soc. Lect. Notes Ser.* 165, Cambridge University Press, 1992, pp. 287–291.
60. A group-theoretic approach to the synthesis of systems of discrete frequency signals, Preprint 934, *Acad. Nauk SSSR Sibirsk. Otdel., Vychisl. Tsentr, Novosibirsk*, 1991, 20 pp. (with E.V. Paderin); MR 93d:94004.
61. Tores et p-groupes, *J. Symbolic Logic* 55 (1990) 478–491 (with B.P. Poizat).
62. Finite subgroups of simple algebraic groups, *Soviet Math. Dokl.* 40 (1990) 570–573.
63. Jordan subgroups of simple algebraic groups, *Algebra and Logic* 28 (1989) 97–108.
64. Structure of finite subgroups of simple algebraic groups, *Algebra and Logic* 28 (1989) 163–182.
65. Jordan subgroups and orthogonal decompositions, *Algebra and Logic* 28 (1989) 248–254.
66. On finite subgroups of simple algebraic groups, in 'Questions in Algebra,' Minsk, 1989, pp.110–115 (in Russian).
67. On groups of automorphisms of multilinear forms and mappings, *Siberian Math. J.* 30 (1989) 472–474.
68. Sylow theory for groups of finite Morley rank, *Siberian Math. J.* 30 (1989) 873–877.
69. Classification of periodic linear groups over fields of odd characteristic, *Siberian Math. J.* 25 (1984) 221–235.
70. Embeddings of finite Chevalley groups and periodic linear groups, *Siberian Math. J.* 24 (1984) 843–851.
71. Periodic linear groups of odd characteristic, *Soviet Math. Dokl.* 26 (1982) 484–486.
72. Theory of finite groups and uncountably categorical groups, preprint (*Acad. Nauk SSSR, Sibirsk. Otdel. Vychisl. Tsentr*), Novosibirsk, 1982, 21 pp. (in Russian).
73. Involutions in groups with a dimension, preprint (*Acad. Nauk SSSR, Sibirsk. Otdel., Vychisl. Tsentr*), Novosibirsk, 18 pp. (in Russian).
74. Normalizers of 2-subgroups of finite groups, *Siberian Math. J.* 22 (1981) 532–544.
75. 3-local characterisation of Held group, *Algebra and Logic*, 19 (1980) 255–266.
76. Groups of automorphisms of finite p-groups, *Math. Notes*, 19 (1976) 245–255. (With E. I. Khukhro.)

**Submitted
Papers**

1. Definably linear groups of finite Morley rank. (With J. Burdges.) <http://arxiv.org/pdf/0801.3958>

**Peer-reviewed
publications
by PhD
students
based on
their theses**

1. G. Petrides, Cryptanalysis of the public key cryptosystem based on the word problem on the Grigorchuk groups, in "Cryptography and Coding. 9th IMA Internat. Conf., Cirencister, UK, Dec 2003", LNCS 2898, Springer-Verlag, 2003 234–244.

2. R. F. Booth, Oriented Lagrangian orthogonal matroid representations, *European Journal of Combinatorics* 22 (2001) 627–638.
3. A. Berkman, The classical involution theorem for groups of finite Morley rank, *J. Algebra* 243 (2001) 361–384.
4. C. Altseimer, A characterisation of $PSp(4, K)$, *Communications in Algebra* 27 no. 4 (1999) 1879–1888.

**Papers on
Mathematics
Education
and Popular
Mathematics**

1. Порекция Меркатора, логарифм и мореплавание, *Математическое Просвещение* no. 14 (2010), 58–82 (with О. М. Худавердян).
2. Didactic transformation in mathematics teaching, in *The Teaching-Research Interface: Implications for Practice in HE and FE* (Muir Houston, ed.). Higher Education Academy Education Subject Centre, Bristol, 2008, pp. 30–35. ISBN 978-1-905788-81-1.
3. Boyutsal Analiz veya Elmalari Insanlara Bülmek, *Matematik Dünyası*, no. 2 (2008) 71–76.
4. Postane Sanısıve Çeşitlemeleri, *Matematik Dünyası*, no. 4 (2005) 61–66.
5. Research Globally – Teach Locally, *Mathematics TODAY* 41 no. 4 (August 2005) 104–105.
6. Kaybolan Açılar (Bir Karınca Hikâyesi), *Matematik Dünyası*, no. 2 (2004) 62–64.
7. Implementation of the Kid Krypto concept, *MSOR Connections* (ISSN 1473-4869), 2 no. 3 (2002) 23–25.

Last updated 17 May 2010.