CV AND PUBLICATIONS BY GAIANE PANINA

CV

NAME
Gaiane Panina

DATE AND PLACE OF BIRTH
08.03.1963, Leningrad

MARTIAL STATE
Married, 3 children

CITIZENSHIP
Russia

HOME ADDRESS
Orbeli 20 92 St. Petersburg 194223 Russia

EDUCATION
1984-1988 Post Graduate Student at Steklov Institute, St.Petersburg
1979-1984 Student at Math. Mech. Department of the Leningrad State University
1976-1979 Student at the Phys.-Math. School N45 at the Leningrad State University

POSITION
- St.Petersburg Institute for Informatics and Automation RAS
- Mathematics and Mechanics Faculty of St.Petersburg State University
- PDMI Physical Mathematical Club

RECENT FIELDS OF RESEARCH
Polygonal linkages
Topological robotics
Convexity
Geometry and combinatorics of polytopes
Rigidity and flexibility of polyhedra
Virtual polytopes
Uniqueness and existence theorems for polytopal and smooth surfaces

DEGREES AND AWARDS
1989 Ph.D in Mathematics, awarded by Leningrad State University
2004 Medal in honour of the 300 anniversary of St. Petersburg

2007 Habilitation in maths,
"Virtual polytopes"
awarded by St. Petersburg State University

Courses taught (recent ones)
2005 Polytope algebra, Summer Student School "Contemporary Mathematics" in Dubna
2006, 2010 Combinatorics of polytopes, PDMI Physical Mathematical Club
2006 Gale diagrams, Summer Student School "Contemporary Mathematics" in Dubna
2006 Pointed spherical tilings, PDMI Physical Mathematical Club
2007, 2009 Combinatorics of polytopes-2, PDMI Physical Mathematical Club
2007 N. Mnev's universality theorem, Summer Student School "Contemporary Mathematics" in Dubna
2008 Combinatorial geometry, Physical Mathematical Club
2008 On flexible frameworks, graphs on the sphere, and virtual polytopes, Summer Student School "Contemporary Mathematics" in Dubna
2008-2009 Convex polytopes and algebraic geometry, Physical Mathematical Club
2008 Topology, school 566 (Alferof's school)
2009 Combinatorics of polytopes, St. Pb University
2009 Toric varieties, Summer School "Contemporary Mathematics" in Dubna
2009 N. Mnev's universality theorem, International Summer School "New trends in geometry and topology", Batumi
2010 (with P. Zograf) Moduli spaces of algebraic curves, Physical Mathematical Club
2010 Integer points in lattice polytopes, Summer Student School "Contemporary Mathematics" in Dubna
2010 Computational geometry, school 566 (Alferof's school)
2012 "Polytope algebra", International Summer School of Mathematics for Young Students, Lyon
2013 "Configuration spaces", International Summer School of Mathematics for Young Students, Bremen
2013 "Morse theory", PDMI Physical Mathematical Club,
2015, "Discrete Morse theory", Summer Student School "Contemporary Mathematics" in Dubna
and others.

PhD students
Marina Knyazeva (PhD 2008)
Alena Zhukova (PhD 2012)

Grants
1993 Soros Foundation grant

1998 Prize for students, Ph.D. students and young scientists of St. Pb.
2000 RFBR 00-01-00586
2002 RFBR 02-01-00908
2006 RFBR 06-01-10900
2007 NSF CCF-0430990
2009 RFBR 09-03-08001
2014 RFBR 15-01-02021

Recent conferences
2001 Combinatorial Convexity and Algebraic Geometry, Oberwolfach
2001 Convexity, Oberwolfach
2002 Russian-German Geometry Meeting, St. Petersburg
2003 Polyhedral surfaces: Geometry and Combinatorics, St.Petersburg
2004 Differential Equations and Related Topics, I.Petrovskii mem., Moscow
2004 Geometry, Topology, and Combinatorics, Stockholm (invited speaker)
2006 Rigidity and flexibility, Wien (invited speaker)
2006 Herissons and virtual polytopes, Wien (invited speaker)
2006 Low-dimensional geometry, St. Petersburg
2006 Convex geometry, Oberwolfach
2007 ETH combinatorics day, ETH, Zuerich
2007 Rigidity and polyhedral combinatorics, AIM, Palo Alto
2008 Differential equations and topology (Pontryagin memorial), Moscow
2009 Discrete differential geometry, Oberwolfach
2009 Symposium on Computational Geometry, Aarhus, Denmark
2009 New trends in geometry and topology, Batumi, Georgia (invited speaker)
2010 Topology, Geometry, and Dynamics: Rokhlin Memorial, St. Pb.
2010 Geometry, Topology, and Number Theory, (B. Delone memorial), Moscow
2010 Metric geometry of surfaces and polyhedra, (N. Efimov mem.), Moscow
2012 Algebraic and Differential Geometry of Andrei Tyurin, Moscow (invited speaker)
2013 Computer Algebra, St. Petersburg
2013 Geometry, Topology, and Applications, Yaroslavl (invited speaker)
2014 Computer Algebra, St. Petersburg, Euler Institute
2014 Geometry, Topology and Integrability, Skolkovo Institute of Science and Technology, Moscow
2014 Rigidity of structures, AIM, Palo Alto (invited speaker)
2015 Torus Actions in Geometry, Topology, and Applications, Skolkovo Institute of Science and Technology, Moscow
2015 The Fifth German-Russian Week of the Young Researcher on Discrete Geometry, Moscow
2015 Dynamics, Combinatorics, Representations, St. Petersburg, Euler Institute
2015 Computer Algebra, St. Petersburg
2015 Memorial conference of Andrei Tyurin, Moscow (invited speaker)

Membership
St. Petersburg Mathematical Society (member of)

Recent publications

[1] Panina G. The structure of the virtual polytope group relative to cylinder subgroups. (English. Russian original) St. Petersbg. Math. J. 13, No. 3, 471-484 (2002); translation from Algebra Anal. 13, No. 3, 179-197 (2002).

[2] Panina G. On Minkowski decompositions of polytopes. Proc. ADG-2000 (Automated deduction in geometry), 228-233 (2000).

[3] Virtual polytopes and classical problems in geometry. (English. Russian original) St. Petersbg. Math. J. 14, No. 5, 823-834 (2003); translation from Algebra Anal. 14, No. 5, 152-170 (2002).

[4] Panina G. Rigidity and flexibility of virtual polytopes. Central European J. of Math., No. 2, 157-168 (2003).

[5] Panina G. New counterexamples to A.D. Alexandrov's hypothesis. Advances in Geometry, No. 5, 301-317 (2005).

[6] Panina G. On hyperbolic virtual polytopes and hyperbolic fans. Central European J. of Math, Vol. 4, No. 2, 270-293(2006).

[7] Panina G. A.D. Alexandrov's uniqueness theorem for convex polytopes and its refinements. Contributions to Alg. and Geom. Vol.49 (2008), No. 1, 59-70.

[8] Knyazeva M., Panina G. An illustrated theory of hyperbolic virtual polytopes, CESJM, Vol. 6 N 2 (2008) 204-217.

[9] Knyazeva M., Panina G. On non-isotopic saddle hedgehogs. Russ. Math. Surv. 63, No. 5, 968-969 (2008).

[10] Panina G., Streinu I. Flattening single-vertex origami: The non-expansive case. Comput. Geom. 43, No. 8, 678-687 (2010).

[11] Khimshiashvili G., Panina G. Cyclic polygons are critical points of area, Zap.Nauchn. Sem. POMI, 360, pp 232-238 (2008).

[12] Knyazeva M., Panina G. A counterexample to A.D. Alexandrov's conjecture, www.eg-models.de

[13] Panina G. Piecewise linear saddle spheres on S^3, Oberwolfach reports, No.2, 28-30 (2009).

[14] Panina G. On combinatorics of inflexion arches of saddle spheres, Journal for Geometry and Graphics 13 , No. 1, 059-073 (2009).

[15] Panina G. Pointed spherical tilings and hyperbolic virtual polytopes, Zap. Nauchn. Sem. POMI, 372, 157-171 (2009).

[16] Panina G. Singularities of piecewise linear saddle spheres on S^3, Journal of Singularities, No.1, 69-84(2010).

[17] Panina G. Isotopy problems for saddle surfaces. Eur. J. Comb. 31, No. 4, 1160-1170 (2010).
DOI: 10.1016/j.ejc.2009.10.002

[18] Panina G., Zhukova A. Morse index of a cyclic polygon. Cent. Eur. J. Math., 9(2), 364-377(2011).
DOI: 10.2478/s11533-011-0011-5

[19] Panina G. Around A.D. Alexandrov's uniqueness theorem for convex polytopes. Adv. Geom. Vol.14, No. 4, 621-637(2012).

[20] Panina G., Khimshiashvili G. On the Area of a Polygonal Linkage Dokl. Akad. Nauk, Mathematics, , Vol. 85, No. 1, 120-121(2012).

DOI: 10.1134/S1064562412010401

[21] G. Khimshiashvili, G. Panina, D.Siersma, A. Zhukova, Critical configurations of planar robot arms, Centr. Eur. J. Math. 11, No.3, 519-529(2013).

DOI: 10.2478/s11533-012-0147-y

[22] M. Khristoforov, G. Panina, Swap action on moduli spaces of polygonal linkages, Journal of Mathematical Sciences (United States) Vol. 195 No. 2, 237-244 (2013).

DOI: 10.1007/s10958-013-1576-2

[23] Panina G. Cyclopermutohrdron, Proc. Steklov Inst.Math. Vol. 288,1, 2015

[24] Panina G., Siersma D., Khimshiashvili G., Coulomb Control of Polygonal Linkages, Journal of Dynamical and Control Systems,Volume 20, Issue 4, 2014, pp 491-501.

[25] Panina G., Siersma D., Khimshiashvili G., Equilibria of point charges on convex curves, Journal of Geometry and Physics, 98(2015) 110-117.

[26] Panina G., Siersma D., Khimshiashvili G., Zolotov V., Point Charges and Polygonal Linkages, Journal of Dynamical and Control Systems, 2015.

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