

Curriculum Vitae

- NAME : MARKUSHEVICH (MARKOUCHEVITCH)
- FIRST NAME : Dimitri

- CURRENT POSITION : Professor at the University Lille 1
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Degrees :

- HABILITATION : Presented on 9 January 1995 at the University Lyon 1. The composition of the jury : Prof. Michèle Audin (IRMA, Strasbourg), Prof. Arnaud Beauville - President of the jury (ENS Ulm, Paris), Prof. Marc Chamarie (Univ. Lyon-1), Prof. Jean Yves Mérindol - referee (IRMA, Strasbourg), Prof. Dr. Thomas Peternell - referee (Univ. Bayreuth), Prof. Christiaan Peters - referee (Institut Fourier, Grenoble), Prof. Claude Roger (Univ. Lyon-1).
- PHD : Thesis "Canonical Singularities of 3-dimensional algebraic varieties" presented on 18 October 1985 at the Department of Mathematics of the Moscow State University; research advisor - V.A.Iskovskikh, referees - V.I.Arnold and V.V.Shokurov.
- DIPLOMA OF 5 YEARS OF UNIVERSITY STUDIES with excellent mention : Obtained in 1982 from the Moscow University after the defense of a diploma thesis entitled "Canonical quotient singularities"; research advisor - V.A.Iskovskikh, referee - Yu. I. Manin.

Previous Positions:

- 01/09/1996-present Professor at the University of Lille I
- 11/03/1993-31/08/1996 Senior Lecturer at the University of Lyon I
- 01/05/91-28/02/93 Senior Lecturer at the Technion - Israel Institute of Technology
- 01/08/85-15/09/91 Research Scientist, Institute of Mechanics of the Academy of Sciences of the USSR

Recent visiting (≥ 2 weeks):

- 2010 Mathematics Institute of the Chinese Academy of Sciences, Beijing (1 month).
- 2010 RiP stay at Mathematisches Forschungsinstitut Oberwolfach (2 weeks).
- 2009/2010 Frederick Gehring Professor at the University of Michigan in Ann Arbor (fall semester).
- 2009 International School for Advanced Studies in Trieste (3 weeks)
- 2008 International School for Advanced Studies in Trieste (6 weeks)
- 2007 Visiting Professor at the International School for Advanced Studies in Trieste (1 month)
- 2007 Mittag-Leffler Institute in Stockholm (1 month)
- 2006/2007 Guest Professor at the Max-Planck-Institut für Mathematik in Bonn (12 months)

Recent grants:

Coordination of grants:

- Coordinator of the ANR grant ANR-09-BLAN-0104 "Holomorphically symplectic varieties, their moduli spaces and automorphic forms" VHSMOD-2009 (3 years, 2009–2012) including the following participants: F. Cléry, O. Debarre, S. Druel, B. Fu, B. Grandpierre, V. Gritsenko, F. Lemaire, L. Manivel, D. Markushevich, C. Sorger, D. Zagier.

Other grants:

- 2010 Grant BQR (Bonus Qualité Recherche) from the USTL "Moduli spaces and derived categories"
- 2009 Grant BQR (Bonus Qualité Recherche) from the USTL for collaboration with U. Bruzzo (Trieste), R. Donagi (Philadelphie) et I. Dolgachev (Ann Arbor).
- 2008 Exchange grant 'Lagrangian fibrations' within the framework of the European Science Foundation activity entitled 'Methods of Integrable Systems, Geometry, Applied Mathematics' (MISGAM # 1943)
- 2007 Secondment to CNRS for 6 months

Organization of conferences:

- Co-organization with V. Gritsenko of the conference "Moduli spaces and automorphic forms", Luminy, October/2011.
- Co-organization with A. S. Tikhomirov and M. Verbitsky of the conference "Instantons in complex geometry" in Moscow, March/2011.
- Member of the Scientific Committee of the conference "Categorical methods in geometry and gauge theory" at the Chern Mathematics Institute (Tianjin, China) in September/2010.
- Co-organization with V. Gritsenko of the conference "Holomorphically symplectic varieties and moduli spaces", Lille, June/2009.

Recent invited talks:

- Algebraic Geometry Seminar at the Jussieu Mathematics Institute, Paris, June/2011.
- Second Latin Congress on Symmetries in Geometry and Physics, Universidade Federal do Paraná, Curitiba, Brazil, December/2010.
- Algebraic Geometry Seminar at the University of Angers, November/2010.
- Mini-workshop on holomorphic symplectic geometry, KIAS, Seoul, September/2010
- Colloquium talks in the Mathematics Institute of the Chinese Academy of Sciences, Beijing, and the Hong Kong University of Science and Technology, Hong Kong, September/2010
- Conference "Categorical methods in geometry and gauge theory", Nankai Univ., Tianjin, September/2010
- Conference "Journées EPW", IHP (Paris), 2010
- Conference "Derived categories and holomorphically symplectic varieties", IHP (Paris), 2010
- Conference "Géométrie algébrique et géométrie complexe" at CIRM (Luminy), January/2010.
- Seminars at the University of Michigan in Ann Arbor (3 talks in April, November, December) and at the University of Pennsylvania in Philadelphia in 2009.
- Workshop "Noncommutative geometry in representation theory and integrable systems" in Trieste, July/2009.
- Seminar talk at the Institute for Theoretical and Experimental Physics in Moscow, November/2008.

- Colloquium talk at SISSA in Trieste, 2008.
- Workshop on Geometric Methods in Mathematical Physics, Trieste, 2008.
- Workshop on moduli spaces, enumerative problems, and integrable systems, Genova, 2008.
- Conference "Géométrie algébrique complexe" in Luminy, 2008.
- Talks at the Parshin–Shafarevich Seminar at the Steklov Institute in Moscow and at the Algebraic Geometry Seminar of the University Roma 1, 2008.

Publications:

A. Refereed journals

- [1] *On compactification of a Clemens family of three-dimensional algebraic varieties*, Mosc. Univ. Math. Bull. **37**, 49–53 (1982).
- [2] *Numerical invariants of families of straight lines of Fano manifolds*, Math. USSR, Sbornik **44**, 239–260 (1983).
- [3] *Classification of algebraic varieties with chain condition for adjunction*, Mosc. Univ. Math. Bull. **39**, 28–39 (1984).
- [4] *Criteria for cyclic quotients of regular and non-degenerate double singular points to be canonical*, jointly S.V.Konyagin, Siberian Math. J. **26**, 530–539 (1985).
- [5] *Vacuum superstring configurations related to semi-simple Lie algebras*, jointly M.A.Ol’shanetzky et al., JETP Letters **43**, 78–81 (1986).
- [6] *Canonical singularities of three-dimensional hypersurfaces*, Math.USSR, Izv. **26**, 315–345 (1986).
- [7] *Description of a class of superstring compactifications related to semi-simple Lie algebras*, jointly M.A.Ol’shanetsky et al., Commun. Math. Phys. **111**, 247–274 (1987).
- [8] *Description of a class of superstring compactifications related to semi-simple Lie algebras*, jointly M.A.Ol’shanetsky et al., Teor. i Mat. Fizika **77**, 212–223 (1988).
- [9] *Resolution of singularities in superstring compactification (toric method)*, jointly M.A.Ol’shanetsky et al., Teor. i Mat. Fizika **77**, 352–368 (1988).
- [10] *Integrable symplectic structures on compact complex manifolds*, Math.USSR, Sbornik **59**, 459–469 (1988).
- [11] *Ricci-flat compactifications in superstring theory, and Coxeter automorphisms. I*, jointly M.A.Ol’shanetsky et al., Sov. J. Theor. Math. Phys. **77**, 1152–1160 (1989).
- [12] *Ricci-flat compactifications in superstring theory, and Coxeter automorphisms. II*, jointly M.A.Ol’shanetsky et al., Sov. J. Theor. Math. Phys. **77**, 1247–1259 (1989).
- [13] *Vibrations of a double cylindrical shell filled with a liquid*, Mechanics of Solids **1989**, 124–131 (1989).
- [14] *Some examples of instantons in sigma models. I*, jointly Ya.Kogan et al., Teor. i Mat. Fizika **79**, 185–197 (1989).
- [15] *Some examples of instantons in sigma models. II*, jointly Ya.Kogan et al., Soviet J. Nucl. Phys. **49**, 378–389 (1989).
- [16] *Radiation of an elastic layer into a liquid half-space (plane problem)*, jointly J.D.Kaplunov, Doklady AN SSSR, Mekhanika **313**, 1385–1390 (1990).
- [17] *Some examples of instantons in sigma models*, jointly Ya.Kogan et al., Internatl. J. Mod. Phys. **A5**, 2053–2066 (1990).
- [18] *Some examples of instantons in sigma models. II: K3 manifolds*, jointly Ya.Kogan et al., Internatl. J. Mod. Phys. **A5**, 2067–2085 (1990).
- [19] *The D_n generalized pure braid group*, Geom. Dedicata **40**, 73–96 (1991).
- [20] *A few examples of elliptic threefolds with trivial canonical bundle*, Diff. Geom. and Applic. **3**, 101–112 (1993).

- [21] *High frequency vibrations and radiation of the elastic layer into a liquid half space*, jointly J.D.Kaplunov, Wave Motion **17**, 199–211 (1993).
- [22] *A criterion for property C*, jointly A.G.Ramm, J. Math. Anal. and Applic. **177**, 491–495 (1993).
- [23] *Singularités quotients non-abéliennes de dimension 3 et variétés de Calabi-Yau*, en collaboration avec J. Bertin, Math. Annalen **299**, 105–116 (1994).
- [24] *The monodromy of the Brieskorn bundle*, jointly A. Leibman, Contemp. Math. **164**, 91–117 (1994).
- [25] *On the number of rational maps between varieties of general type*, jointly T. Bandman, J. Math. Sci. Univ. Tokyo **1**, 423–433 (1994).
- [26] *Completely integrable projective symplectic 4-dimensional varieties*, Izv. Ross. Akad. Nauk Ser. Mat. **59:1**, 157–184(1995) = Izvestiya: Mathematics **59:1**, 159–187 (1995).
- [27] *Minimal discrepancy for a terminal CDV singularity is 1*, J. Math. Sci. Univ. Tokyo **3**, 445–456 (1996).
- [28] *Lagrangian families of Jacobians of genus-2 curves*, J. Math. Sci. **82:1**, 3268–3284 (1996).
- [29] *Resolution of \mathbb{C}^3/H_{168}* , Math. Annalen **308**, 279–289 (1997).
- [30] *A tower of genus-2 curves related to the Kowalewski top*, jointly F. Leprévost, J. Reine Angew. Math. **514**, 103–111 (1999).
- [31] *Klein’s group defines an exceptional singularity of dimension 3*, jointly Yu. Prokhorov, J. Math. Sci. (New York) **94**, 1060–1067 (1999).
- [32] *Exceptional quotient singularities*, jointly Yu. Prokhorov, Amer. J. Math. **121**, 1179–1189 (1999).
- [33] *The Abel-Jacobi map for a cubic threefold and periods of Fano threefolds of degree 14*, jointly A. Iliev, Doc. Math. **5**, 23–47 (2000).
- [34] *Quartic 3-fold: Pfaffians, vector bundles, and half-canonical curves*, jointly A. Iliev, Michigan Math. J. **47**, 385–394 (2000).
- [35] *Kowalevski top and genus-2 curves*, J. Phys. **A 34**, 2125–2135 (2001).
- [36] *The Abel-Jacobi map of a moduli component of vector bundles on the cubic threefold*, jointly A. S. Tikhomirov, J. Algebraic Geom. **10**, 37–62 (2001).
- [37] *Symplectic structure on a moduli space of sheaves on a cubic fourfold*, jointly A. S. Tikhomirov, Izv. Ross. Akad. Nauk Ser. Mat. **67**, 131–158 (2003).
- [38] *A parametrization of the theta divisor of the quartic double solid*, jointly A. S. Tikhomirov, IMRN **2003**, 2747–2778.
- [39] *Elliptic curves and rank-2 vector bundles on the prime Fano threefold of genus 7*, jointly A. Iliev, Advances in Geometry **4**, 287–318 (2004).
- [40] *Rational Lagrangian fibrations on punctual Hilbert schemes of K3 surfaces*, Manuscripta Math. **120**, no. 2, 131–150 (2006).
- [41] *Parametrization of $\text{Sing } \Theta$ for a Fano 3-fold of genus 7 by moduli of vector bundles*, jointly A. Iliev, Asian Journal of Mathematics **11**, 427–458 (2007).
- [42] *New symplectic V-manifolds of dimension four via the relative compactified Prymian*, jointly A. S. Tikhomirov, International Journal of Mathematics **18**, 1187 – 1224 (2007).
- [43] *An integrable system of K3-Fano flags*, Math. Annalen **342**, 145–156 (2008).
- [44] *Symplectic structures on moduli spaces of sheaves via the Atiyah class*, jointly A. Kuznetsov, J. Geom. Physics **59**, 843–860 (2009).
- [45] *Abel-Jacobi maps for hypersurfaces and non commutative Calabi-Yau’s*, jointly A. Kuznetsov, L. Manivel, Commun. Contemp. Math. **12**, 373–416 (2010).
- [46] *Moduli of framed sheaves on projective surfaces*, with U. Bruzzo, Documenta Mathematica **16**, 283–294 (2011).

B. Publications in Proceedings of Conferences

- [47] *On three-dimensional algebraic varieties with the condition of termination of the adjunction*, In: V All-Union Symp. on Theory of Rings, Algebras and Modules (Communications), Novosibirsk, 1982, 91–92 (in Russian).
- [48] *Compound Du Val singularities of three-dimensional varieties*, In: XVII All-Union Algebraic Conference (Communications), Minsk, 1983, 122–123 (in Russian).
- [49] *An obstruction to the integrability of symplectic structures on compact complex manifolds*, In: XVIII All-Union Algebraic Conference (Communications), Kishinev, 1985, 16–17 (in Russian).
- [50] *Canonical singularities of affine cones*, In: Algebra, Logic and Number Theory (Collection of papers edited by O.B.Lupanov and A.I.Kostrikin), Mosc. Univ. Publ.: Moscow, 1986, 60–63 (in Russian).
- [51] *On an approximate method for analysis of vibrations of a double cylindrical shell with a liquid*, In: XIV All-Union Conference on Theory of Shells and Plates (Proceedings), Kutaisi-Tbilisi, 1987, 217–219 (in Russian).
- [52] *Evaluating complex eigen-frequencies of a thin plate in a stationary magnetic field*, jointly E.V.Nol'de, In: IV All-Union Symp. on Theoretical Problems of Magnetoelasticity (Proceedings), Erevan, 1989, 129-135 (in Russian).
- [53] *Thin elastic shells immersed in a liquid: asymptotic analysis of the scattering problem*, jointly E.V.Nol'de et al., In: Colloquium EUROMECH-271, Kiev, 1990, 24-25.
- [54] *On fundamental groups of some hyperplane arrangements related to simple root systems*, Internatl. Congr. Math. (Abstracts. Short Communications), Kyoto, 1990, 83–84.
- [55] *Some algebro-geometric integrable systems versus classical ones*, The Kowalevski property (Leeds, 2000), 197–218, CRM Proc. Lecture Notes, 32, AMS, Providence, RI, 2002.

C. Other publications

- [56] Canonical singularities of three-dimensional algebraic varieties, PhD thesis, Moscow University, 1985.
- [57] Translation into Russian of the monograph by S.Lang, *Fundamentals of Diophantine Geometry*, Mir : Moscow, 1986.
- [58] Introduction aux singularités canoniques, Minicours, Publ. de l'Institut G. Desargues, Lyon, 1995.
- [59] *Spectral Curves and Integrable Systems*, Editor, jointly V. B. Matveev, A. Treibich, Proceedings of a conference held in Lille, June 2003, Lett. Math. Phys. **76**, no. 2-3 (2006).
- [60] *Foreword, Proc. Conf. 'Spectral Curves and Integrable Systems' (Lille, 2003)*, jointly V. B. Matveev, A. Treibich, Lett. Math. Phys. **76** (2006), 109.

D. Preprints

- [61] Integrable systems from intermediate Jacobians of fivefolds, preprint 2009.
- [62] *Bubble-tree compactification of moduli spaces of vector bundles on surfaces*, with A. Tikhomirov and G. Trautmann, 2011.
- [63] *Uhlenbeck-Donaldson compactification for framed sheaves on projective surfaces*, with U. Bruzzo and A. Tikhomirov, arXiv:1009.0856.
- [64] *Lagrangian tens of planes, Enriques surfaces and holomorphic symplectic fourfolds*, with I. Dolgachev, 70 pp., Preprint 2011.
- [65] *Rationality of instanton moduli*, with A. Tikhomirov, arXiv:1012.4132.