

## Peer-reviewed articles.

- (1) (with Osipov, A. A.) The gauge fixing extension of the Krichever–Novikov algebra in the closed string theory. *Phys. Lett. B* 222 (1989), no. 3-4, 391–394.
- (2) (with Osipov, A. A.) Extension of the constraint algebra for a closed string with a world surface of fixed topology. *Soviet J. Nuclear Phys.* 50 (1989), no. 2, 348–353 (1990); *translated from Yadernaya Fiz.* 50 (1989), no. 2, 562–572 (Russian)
- (3) (with Mangazeev, V. V.) The four-state solution of the Yang–Baxter equation. *Phys. Lett. A* 150 (1990), no. 8-9, 375–379.
- (4) (with Bazhanov, V. V.) Cyclic  $L$ -operator related with a 3-state  $R$ -matrix. *Comm. Math. Phys.* 136 (1991), no. 3, 607–623.
- (5) (with Bazhanov, V. V.; Mangazeev, V. V.; Stroganov, Yu. G.)  $(Z_N \times)^{n-1}$  generalization of the chiral Potts model. *Comm. Math. Phys.* 138 (1991), no. 2, 393–408.
- (6) (with Mangazeev, V. V.; Nakanishi, T.) Yang–Baxter equation for the  $\mathfrak{sl}(n)$  chiral Potts model. *Nuclear Phys. B* 362 (1991), no. 3, 563–582.
- (7) (with Mangazeev, V. V.; Stroganov, Yu. G.) Cyclic eight-state  $R$ -matrix related to  $U_q(\mathfrak{sl}(3))$  algebra at  $q^2 = -1$ . *Modern Phys. Lett. A* 6 (1991), no. 37, 3437–3443.
- (8) (with Mangazeev, V. V.)  $N^{n(n-1)/2}$ -state intertwiner related to  $U_q(\mathfrak{sl}(n))$  algebra at  $q^{2N} = 1$ . *Modern Phys. Lett. A* 7 (1992), no. 30, 2827–2835.
- (9) (with Mangazeev, V. V.; Stroganov, Yu. G.) Spatial symmetry, local integrability and tetrahedron equations in the Baxter–Bazhanov model. *Internat. J. Modern Phys. A* 8 (1993), no. 3, 587–601.
- (10) (with Mangazeev, V. V.; Stroganov, Yu. G.) Star-square and tetrahedron equations in the Baxter–Bazhanov model. *Internat. J. Modern Phys. A* 8 (1993), no. 8, 1399–1409.
- (11) (with Stroganov, Yu. G.) Generalized Yang–Baxter equation. *Modern Phys. Lett. A* 8 (1993), no. 24, 2299–2309.
- (12) (with Faddeev, L. D.) Quantum dilogarithm. *Modern Phys. Lett. A* 9 (1994), no. 5, 427–434.
- (13) Quantum dilogarithm as a  $6j$ -symbol. *Modern Phys. Lett. A* 9 (1994), no. 40, 3757–3768.
- (14) (with Faddeev, L. D.) Generalized Bethe ansatz equations for Hofstadter problem. *Comm. Math. Phys.* 169 (1995), no. 1, 181–191.
- (15) A link invariant from quantum dilogarithm. *Modern Phys. Lett. A* 10 (1995), no. 19, 1409–1418.
- (16) An invariant of triangulated links from a quantum dilogarithm. (Russian) *Zap. Nauchn. Sem. S.-Peterburg. Otdel. Mat. Inst. Steklov. (POMI)* 224 (1995), Voprosy Kvant. Teor. Polya i Statist. Fiz. 13, 208–214, 339; *translation in J. Math. Sci. (New York)* 88 (1998), no. 2, 244–248.
- (17) On discrete three-dimensional equations associated with the local Yang–Baxter relation. *Lett. Math. Phys.* 38 (1996), no. 4, 389–397.
- (18) The Heisenberg double and the pentagon relation. *Algebra i Analiz* 8 (1996), no. 4, 63–74; *translation in St. Petersburg Math. J.* 8 (1997), no. 4, 585–592.
- (19) The hyperbolic volume of knots from the quantum dilogarithm. *Lett. Math. Phys.* 39 (1997), no. 3, 269–275.
- (20) (with Reshetikhin, N. Yu.) Affine Toda field theory as a 3-dimensional integrable system. *Comm. Math. Phys.* 188 (1997), no. 2, 251–266.
- (21) Quantization of Teichmüller spaces and the quantum dilogarithm. *Lett. Math. Phys.* 43 (1998), no. 2, 105–115.
- (22) (with Sergeev, S. M.) On pentagon, ten-term, and tetrahedron relations. *Comm. Math. Phys.* 195 (1998), no. 2, 309–319.
- (23) (with Korepanov, I. G.; Sergeev, S. M.) The functional tetrahedron equation. (Russian) *Teoret. Mat. Fiz.* 117 (1998), no. 3, 370–384; *translation in Theoret. and Math. Phys.* 117 (1998), no. 3, 1402–1413 (1999).
- (24) On matrix generalizations of the dilogarithm. (Russian) Exactly solvable models in mathematical physics (Russian) (Chelyabinsk, 1998). *Teoret. Mat. Fiz.* 118 (1999), no. 3, 398–404; *translation in Theoret. and Math. Phys.* 118 (1999), no. 3, 314–318.
- (25) The Liouville central charge in quantum Teichmüller theory. (Russian) *Tr. Mat. Inst. Steklova* 226 (1999), Mat. Fiz. Probl. Kvantovoi Teor. Polya, 72–81; *translation in Proc. Steklov Inst. Math.* 1999, no. 3 (226), 63–71.

- (26) The pentagon equation and mapping class groups of surfaces with marked points. (Russian) *Teoret. Mat. Fiz.* 123 (2000), no. 2, 198–204; *translation in Theoret. and Math. Phys.* 123 (2000), no. 2, 576–581.
- (27) (with Tirkkonen, O.) A proof of the volume conjecture on torus knots. (Russian) *Zap. Nauchn. Sem. S.-Peterburg. Otdel. Mat. Inst. Steklov. (POMI)* 269 (2000), Vopr. Kvant. Teor. Polya i Stat. Fiz. 16, 262–268, 370; *translation in J. Math. Sci. (N. Y.)* 115 (2003), no. 1, 2033–2036.
- (28) (with Faddeev, L. D.; Volkov, A. Yu.) Strongly coupled quantum discrete Liouville theory. I. Algebraic approach and duality. *Comm. Math. Phys.* 219 (2001), no. 1, 199–219.
- (29) The non-compact quantum dilogarithm and the Baxter equations. Proceedings of the Baxter Revolution in Mathematical Physics (Canberra, 2000). *J. Statist. Phys.* 102 (2001), no. 3-4, 923–936.
- (30) (with Faddeev, L. D.) Strongly coupled quantum discrete Liouville theory. II. Geometric interpretation of the evolution operator. *J. Phys. A* 35 (2002), no. 18, 4043–4048.
- (31) Coordinates for the moduli space of flat  $\mathrm{PSL}(2, \mathbb{R})$ -connections. *Math. Res. Lett.* 12 (2005), no. 1, 23–36.
- (32) On selfadjoint extensions of a difference operator. (Russian) *Algebra i Analiz* 17 (2005), no. 1, 209–223; *translation in St. Petersburg Math. J.* 17 (2006), no. 1, 157–167.
- (33) (with Dubois, Jérôme.) On the asymptotic expansion of the colored Jones polynomial for torus knots. *Math. Ann.* 339 (2007), no. 4, 757–782.
- (34)  $\Delta$ -groupoids in knot theory. *Geom. Dedicata* 150 (2011), 105–130.
- (35) (with Nakanishi, Tomoki.) Classical and quantum dilogarithm identities. *SIGMA Symmetry Integrability Geom. Methods Appl.* 7 (2011), Paper 102, 29.
- (36) (with Geer, Nathan and Turaev, Vladimir.) Tetrahedral forms in monoidal categories and 3-manifold invariants. *J. Reine Angew. Math.* 673 (2012), 69–123.

#### Book contributions.

- (37) (with Mangazeev, V.V.; Stroganov, Yu. G.)  $N^3$ -state  $R$ -matrix related with  $U_q(\mathfrak{sl}(3))$  algebra at  $q^{2N} = 1$ . *Infinite analysis, Part A, B (Kyoto, 1991)*, 485–492, Adv. Ser. Math. Phys., 16, World Sci. Publ., River Edge, NJ, 1992.
- (38) (with Saveliev, M.V.; Savelieva, S.A.; Vershik, A.M.) On nonlinear equations associated with Lie algebras of diffeomorphism groups of two-dimensional manifolds. *Ideas and methods in mathematical analysis, stochastic, and applications (Oslo, 1988)*, 295–307, Cambridge Univ. Press, Cambridge, 1992.
- (39) The algebraic nature of quantum dilogarithm. *Geometry and integrable models (Dubna, 1994)*, 32–51, *World Sci. Publ., River Edge, NJ*, 1996.
- (40) Local Yang–Baxter relations associated with Hirota’s discrete equation. *Symmetries and integrability of difference equations (Canterbury, 1996)*, 402–409, London Math. Soc. Lecture Note Ser., 255, Cambridge Univ. Press, Cambridge, 1999.
- (41) (with Reshetikhin, Nikolai Yu.) Affine Toda field theory as a three-dimensional integrable system. *Discrete integrable geometry and physics (Vienna, 1996)*, 321–341, Oxford Lecture Ser. Math. Appl., 16, *Oxford Univ. Press, New York*, 1999.
- (42) Quantum hyperbolic invariants of knots. *Discrete integrable geometry and physics (Vienna, 1996)*, 343–359, Oxford Lecture Ser. Math. Appl., 16, *Oxford Univ. Press, New York*, 1999.
- (43) (with Volkov, A. Yu.) From the tetrahedron equation to universal  $R$ -matrices. *L. D. Faddeev’s Seminar on Mathematical Physics*, 79–89, Amer. Math. Soc. Transl. Ser. 2, 201, *Amer. Math. Soc., Providence, RI*, 2000.
- (44) The quantum dilogarithm and Dehn twists in quantum Teichmüller theory. *Integrable structures of exactly solvable two-dimensional models of quantum field theory (Kiev, 2000)*, 211–221, NATO Sci. Ser. II Math. Phys. Chem., 35, Kluwer Acad. Publ., Dordrecht, 2001.
- (45) On the spectrum of Dehn twists in quantum Teichmüller theory. *Physics and combinatorics, 2000 (Nagoya)*, 63–81, *World Sci. Publ., River Edge, NJ*, 2001.
- (46) (with Reshetikhin, N.) Invariants of tangles with flat connections in their complements. *Graphs and patterns in mathematics and theoretical physics*, 151–172, Proc. Sympos. Pure Math., 73, *Amer. Math. Soc., Providence, RI*, 2005.
- (47) (with Reshetikhin, Nicolai.) Braiding for quantum  $\mathfrak{gl}_2$  at roots of unity. *Noncommutative geometry and representation theory in mathematical physics*, Contemp. Math., 391, 183–197, *Amer. Math. Soc., Providence, RI*, 2005.

- (48) (with Reshetikhin, N.) Symmetrically factorizable groups and self-theoretical solutions of the pentagon equation. *Quantum groups*, Contemp. Math., 433, 267–279, Amer. Math. Soc., Providence, RI, 2007.
- (49) On quantum moduli space of flat  $\mathrm{PSL}_2(\mathbb{R})$ -connections on a punctured surface. *Handbook of Teichmüller theory*. Vol. I, 761–782, IRMA Lect. Math. Theor. Phys., 11, Eur. Math. Soc., Zürich, 2007.
- (50)  $R$ -matrix knot invariants and triangulations. *Interactions between hyperbolic geometry, quantum topology and number theory*. Contemp. Math., 541, 69–81, Amer. Math. Soc., Providence, RI, 2011.
- (51) Delta-groupoids and ideal triangulations. *Chern-Simons gauge theory: 20 years after*. AMS/IP Stud. Adv. Math., 50, 201–216, Amer. Math. Soc., Providence, RI, 2011.
- (52) Fully noncommutative discrete Liouville equation. *Infinite analysis 2010—Developments in quantum integrable systems*. RIMS Kôkyûroku Bessatsu, B28, 89–98, I Res. Inst. Math. Sci. (RIMS), Kyoto, 2011.
- (53) Discrete Liouville equation and Teichmüller theory. *Handbook of Teichmüller theory*. Vol. III, IRMA Lect. Math. Theor. Phys., 17, 821–851, Eur. Math. Soc., Zürich, 2012.

#### Conference papers.

- (54) (with Osipov, A.A.) Extension of the Krichever–Novikov algebra in the theory of a closed string. (Russian) *Current group analysis (Russian) (Baku, 1988)*, 106–113, “Èlm”, Baku, 1989.
- (55) (with Tirkkonen, O.) Recursive approach to MIMO-capacity. Finnish wireless communications workshop FWCW’01, October 2001, Tampere, Finland 2001: pp. 63–64.
- (56) (with Tirkkonen, O.) Combined information and performance optimization of linear MIMO modulations. *Proc. IEEE Int. Symp. Inform. Theory (ISIT 2002)*, Lausanne, Switzerland, June 2002, p. 76.
- (57) (with Tirkkonen, O.) On expansion of MIMO mutual information in SNR. *Proc. IEEE Int. Symp. Inform. Theory (ISIT)*, July 2002, p. 252.
- (58) (with Tirkkonen, O.) Performance optimal and information maximal MIMO modulations. *Proc. IEEE ISIT*, July 2002.
- (59) (with Tirkkonen, O.) Linear matrix modulators from group representation theory. *Proc. IEEE Information Theory Workshop*, 31 March–4 April 2003, pp. 42–45.
- (60) A parametrization of the Teichmüller space of surfaces with boundary. Oberwolfach Reports. Teichmüller Space (Classical and Quantum) Organized by: Shigeyuki Morita, Athanase Papadopoulos and Robert C. Penner. *Europ. Math. Soc.* Volume 3, Issue 2, 2006, 1549–1550.

#### Research reports.

- (61) (with Bazhanov, V. V.; Mangazeev, V. V.)  $Z_N \times Z_N$ -generalization of the chiral Potts Model. Preprint IHEP-90-136, Protvino, 1990.
- (62) (with Mangazeev, V. V.) Cyclic  $L$ -operators connected with  $U_q(SL(N))$  algebra and related integrable models. Preprint IFVE-93-20, Protvino, 1993.
- (63) The  $q$ -binomial formula and the Rogers dilogarithm identity, math.QA/0407078 (2004).
- (64) On ring-valued invariants of topological pairs, arXiv:math/0701543 (2007).
- (65) (with Korepanov, I.; Martyushev, E.) A finite-dimensional TQFT for three-manifolds based on group  $PSL(2, \mathbb{C})$  and cross-ratios, arXiv:0809.4239 (2008).
- (66) (with Andersen, Jørgen Ellegaard) A TQFT from quantum Teichmüller theory. Preprint arXiv:1109.6295 (2011).
- (67) (with Luo, Feng and Vartanov, Grigory) A TQFT of Turaev–Viro type on shaped triangulations. Preprint arXiv:1210.8393 (2012).
- (68) (with Garoufalidis, Stavros) From state integrals to  $q$ -series. Preprint arXiv:1304.2705 (2013).

#### Granted Patents.

- (69) (with Tirkkonen, O.; Wichman, R.) Communication on multiple beams between stations. US7310537, 18.12.2007.