

# List of Publications

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1. Links, two-fold branched coverings and braids, *Matem. sbornik* **87:2** (1972) 216 – 228 (Russian); English translation in Soviet Math. Sbornik.
2. Local knotting of submanifolds, *Matem. sbornik* **90:2** (1973) 172-181 (Russian); English translation in Soviet Math. Sbornik.
3. Two-fold branched coverings of three-dimensional sphere, *Zap. Nauchn. Semin. LOMI* **36** (1973) 6-39 (Russian); English transl. in *J. Soviet Math* **8:5** (1977) 531-553.
4. Branched coverings of manifolds with boundary and invariants of links. I, *Izvestiya AN SSSR, ser. Matem.* **37:6** (1973) 1242-1259 (Russian); English translation in Soviet Math. Izvestia.
5. Non-projecting isotopies and knots with homeomorphic covering spaces, *Zap. Nauchn. Semin. LOMI* **66** (1976) Russian; English transl. in *J. Soviet Math.* **12:1** (1979) 86-96.
6. Placements in codimension 2 and boundary, *Uspekhi Mat. Nauk* **30:1** (1975) 231-232 (Russian).
7. The Volodin-Kuznetsov-Fomenko conjecture on Heegaard diagrams of 3-dimensional sphere is not true, (joint with V.L.Kobelsky), *Uspekhi Mat. Nauk* **32:5** (1977) 175-176 (Russian).
8. Signatures of links, Tezisy VII Vsesoyuznoj topologicheskoy konferencii (1977) 41 (Russian).
9. Estimates for twisted homology, (joint with V.G.Turaev), Tezisy VII Vsesoyuznoj topologicheskoy konferencii (1977) 42 (Russian).
10. Generalizing Petrovsky and Arnold inequalities for curves with singularities, *Uspekhi Mat. Nauk* **33:3** (1978) 145-146 (Russian).
11. Constructing M-surfaces, *Funkts. analiz i ego prilozh.* **13:3** (1979) 71-72 (Russian); English transl. in *Functional Anal. Appl.* **13:3** (1979).
12. Constructing multicomponent real algebraic surfaces, *Doklady AN SSSR* **248:2** (1979) 279-282 (Russian); English transl. in *Soviet Math. Doklady.*
13. Curves of degree 7, curves of degree 8 and Ragsdale conjecture, *Doklady AN SSSR* **254:6** (1980) 1305-1310 (Russian); English transl. in *Soviet Math. Doklady.*
14. Colored knots, *Kvant* (1981) No. 3, 8-14 (Russian); English translation: Tied into Knot Theory: unraveling the basics of mathematical knots. *Quantum* **8** (1998), no. 5, 16–20.

15. Complex orientations of real algebraic surfaces, *Uspekhi Mat. Nauk* **37:4** (1982) 93 (Russian).
16. Gluing algebraic hypersurfaces and constructions of curves, Tezisy Leningradskoj Mezhdunarodnoj Topologicheskoy Konferencii 1982, Nauka (1983) 149-197 (Russian).
17. Plane real algebraic curves of degrees 7 and 8: new restrictions, *Izvestiya AN SSSR, ser. Matem.* **47:5** (1983) 1135-1150 (Russian); English transl. in *Soviet Math. Izvestia*.
18. Progress over the last 5 years in topology of real algebraic varieties, Proceedings of the International Congress of Mathematicians, Aug. 16 – 24, 1983 vol. 1, Warszawa PWN, Warsaw 595-611 (Russian).
19. Intersections of loops on two-dimensional manifolds. II. Free loops (joint with V.G.Turaev), *Mat. sbornik* **121:3** (1983) 359-369 (Russian); English translation in *Soviet Math. Sbornik*.
20. Gluing of plane real algebraic curves and constructions of curves of degrees 6 and 7, *Lecture Notes in Math.* 1060 (1984) 187-200, Springer-Verlag, Berlin and New York.
21. The signature of a branched covering, *Mat. zametki* **36:4** (1984) 549-557 (Russian); English translation in *Math. Notes* 36:3 4772-776.
22. Topological problems on lines and points of the three-dimensional space, *Doklady AN SSSR* **284:5** (1985) 1049-1052 (Russian); English translation in *Soviet Math. Doklady* **32:2** (1985) 528-531 .
23. Progress of the last six years in topology of real algebraic varieties, *Uspekhi Mat. Nauk* **41:3** (1986) 45-67 (Russian) English translation in *Russian Math. Surveys* **41:3** (1986) 55-82.
24. Exotic knottings of surfaces in the 4-sphere (joint with S.M.Finashin and M.Kreck), *Bull. Amer. Math. Soc.* **17:2** (1987) 287-290.
25. Non-diffeomorphic but homeomorphic knottings of surfaces in the 4-sphere (joint with S.M.Finashin and M.Kreck), *Lecture Notes in Math.* **1346** (1988) 157-198, Springer-Verlag, Heidelberg and New-York.
26. Some integral calculus based on Euler characteristic, *Lecture Notes in Math.* **1346** (1988) 127-138, Springer-Verlag, Heidelberg and New-York.
27. Extensions of the Gudkov-Rohlin congruence (joint with V.M.Kharlamov) *Lecture Notes in Math.* **1346** (1988) 357-406, Springer-Verlag, Heidelberg and New-York.
28. Introduction to homotopy theory (joint with D.B.Fuchs), *Current problems in mathematics. Fundamental directions*, **Vol. 24**, 6–121, Itogi Nauki i Tekhniki, Akad. Nauk SSSR, Vsesoyuz. Inst. Nauchn. i Tekhn. Inform., Moscow, 1988 (Russian). English translation by C. J. Shaddock, Encyclopaedia Math. Sci., 24, Topology. II, 1–93, Springer, Berlin, 2004.
29. Homology and cohomology (joint with D.B.Fuchs), *Current problems in mathematics. Fundamental directions*, **Vol. 24**, 123–240, Itogi Nauki i Tekhniki, Akad. Nauk SSSR, Vsesoyuz. Inst. Nauchn. i Tekhn. Inform., Moscow, 1988 (Russian). English translation by C. J. Shaddock, Encyclopaedia Math. Sci., 24, Topology. II, 95–196, Springer, Berlin, 2004.

30. Problems in Topology (joint with O. A. Ivanov, N. Yu. Netsvetaev and V. M. Kharlamov), Leningrad, LGU, 1988 (Russian); Second, extended edition: St. Petersburg, SPbU, 2000.
31. Interlacing of skew lines (joint with J.V.Drobotukhina) *Kvant* (1988) No. 3, 12-19 (Russian).
32. Configurations of skew lines (joint with Ju.V.Drobotukhina), *Algebra i analiz* **1:4** (1989) 222-246 (Russian) English translation in *Leningrad Math. J.* **1:4** (1990) 1027-1050.
33. Compact four-dimensional exotica with small homology, *Algebra i analiz* **1:4** (1989) 67-77 (Russian); English translation in *Leningrad Math. J.* **1:4** (1990) 871-880.
34. Plane real algebraic curves: constructions with controlled topology *Algebra i analiz* **1:5** (1989) 1-73 (Russian); English translation in *Leningrad Math. J.* **1:5** (1990) 1059-1134.
35. State sum invariants of 3-manifolds and quantum 6j-symbols (joint with V.G.Turaev), *Topology* **31:4** (1992) 865-902.
36. Lectures on combinatorial presentations of manifolds, In book Differential geometry and topology (Alghero, 1992) World Sci. Publ., River Edge, NJ (1993) 244-264.
37. Moves of triangulations of a PL-manifold. Quantum groups (Leningrad, 1990), 367-372, Lecture Notes in Math., 1510, Springer, Berlin, 1992.
38. An inequality for the number of nonempty ovals of a curve of odd degree (joint with V.I.Zvonilov), *Algebra i analiz* **4:3** (1992) 159-170 (Russian); English translation in *St. Petersburg Math. J.* **4:3** (1993).
39. Complex orientations of real algebraic surfaces, *Topology of manifolds and varieties, Advances of Soviet Math.* **18** (1994), 261-284.
40. Gauss diagram formulas for Vassiliev invariants,(joint with Michael Polyak) International Mathematics Research Notes 1994:11.
41. Generic immersions of circle to surfaces and complex topology of real algebraic curves, *Topology of real algebraic varieties and relate d topics, ( a volume dedicated to memory of D.A.Gudkov )*, AMS Translations, Series 2, **173**, (1995) 231-252 .
42. Patchworking algebraic curves disproves the Ragsdale conjecture, (joint with Ilia Itenberg), *The Mathematical Intelligencer* **18:1** (1996), 19-28.
43. Mutual position of hypersurfaces in projective space. *Geometry of differential equations*, 161-176, Amer. Math. Soc. Transl. Ser. 2, **186**, Amer. Math. Soc., Providence, RI, 1998.
44. Finite type invariants of classical and virtual knots, (joint with M.Goussarov and M.Polyak), *Topology* **39:5**, (2000) 1045-1068.
45. On the Casson knot invariant, (joint with Michael Polyak), *J. Knot Theory and Its Ramifications* **10:5** (2001) 711-738.
46. Encomplexing the writhe. *Topology, ergodic theory, real algebraic geometry*, 241-256, Amer. Math. Soc. Transl. Ser. 2, **202**, Amer. Math. Soc., Providence, RI, 2001
47. Dequantization of Real Algebraic Geometry on a Logarithmic Paper, *Proceedings of the 3rd European Congress of Mathematicians, Birkhäuser*,

*Progress in Math*, **201**, (2001), 135–146.

48. Congruence modulo 8 for real algebraic curves of degree 9. (joint with S. Yu. Orevkov) *Uspekhi Mat. Nauk* **56** (2001), no. 4(340), 137–138 (Russian); English translation in *Russian Math. Surveys* **56** (2001), no. 4, 770–771.

49. What is an amoeba, *Notices AMS*, **49:8** (2002), 916-917.

50. Remarks on definition of Khovanov homology, arXiv:math.GT/0202199 (2002).

51. Quantum relatives of Alexander polynomial, arXiv:math.T/0204290 (2002), *St.Petersburg Mathematical Journal*, **18:3** (2006) 63–157 (Russian), published also in English in *St.Petersburg Math. J.*

52. Khovanov homology, its definitions and ramifications, *Fund. Math.* **184** (2004), 317-342; math.GT/0204290 .

53. Whitney Number of Closed Real Algebraic Affine Curve of Type I, *Moscow Mathematical Journal* **6:1** (2006) 211-217; see also arXiv: math.AG / 0602256.

54. Virtual Links, Orientations of Chord Diagrams and Khovanov Homology, Proc. of Gökova Geometry-Topology Conference 2005, International Press, 187-212; see also arXiv: math.GT/0611406.

55. Asymptotically Maximal Real Algebraic Hypersurfaces of Projective Space, (joint with Ilia Itenberg) *Proceedings of 13th Gökova Geometry-Topology Conference 2006*, International Press, 2007.

56. From the sixteenth Hilbert problem to Tropical Geometry, *Japan. J. Math*, vol. 3 (2008), pp. 1-30.

57. Elementary Topology Problem Textbook. (joint with O. A. Ivanov, N. Yu. Netsvetaev, V. M. Kharlamov) American Mathematical Society, 2008, 400 pages. ISBN 978-0-8218-4506-6.