

Publications of Konstantin A. Makarov

PUBLICATIONS

- [1] “The discrete orientation model in the theory of superparamagnetism”; (in Russian), with G.N. Belozerskii and B.S. Pavlov.
Vestnik Leningrad. Univ. Fiz. Khim. **4**, 12–18 (1982).
- [2] “Separation of the spectrum of elliptic operators connected with “small diffusion”; (in Russian).
Vestnik Leningrad. Univ. Mat. Mekh. Astronom. **1**, 20–27 (1985).
- [3] “Eigenfunctions of the ”small diffusion” operator in the boundary layer approximation”; (in Russian).
Dokl. Akad. Nauk SSSR **280**, 337–342 (1985). English translation in Sov. Phys. Dokl. **30**, 31–34 (1985).
- [4] “Mathematical foundation for the discrete orientation model”; (in Russian),
Ph.D. Dissertation. University of Leningrad (1985), 161 pages.
- [5] “Mathematical foundation for the discrete orientation model”; (in Russian). Author’s referat of the Ph.D. Thesis. University of Leningrad (1985), 16 pages.
- [6] “One-dimensional model of three-particle resonances”; (in Russian), with Yu. A. Kuperin and B. S. Pavlov.
Theoret. Mat. Fiz. **63**, 78–87 (1985). English translation in Theor. Math. Phys. **63**, 376–382 (1985).
- [7] “Discrete orientation model for superparamagnetic particles with cubic symmetry ($K > 0$)”; with G. N. Belozerskii, B. S. Pavlov, and S. G. Simonian.
Vestnik Leningrad. Univ. Fiz. Khim. **4**, 84–87 (1986).
- [8] “Model of resonance scattering of compound particles”; (in Russian), with Yu. A. Kuperin and B. S. Pavlov.
Theoret. Mat. Fiz. **69**, 100–114 (1986). English translation in Theor. Math. Phys. **69**, 1028–1038 (1986).
- [9] “Quantum scattering theory on energy-dependent potentials”; (in Russian), with Yu. A. Kuperin, S. P. Merkuriev, A. K. Motovilov, and B. S. Pavlov.
In: Properties of few-particle and quark-hadronic systems v.2. Vilnius, Inst. for Physics Acad. of Science Lit. SSR 28–73 (1986).
- [10] “Boundary layer of eigenfunctions of a diffusion operator”; (in Russian).
Probl. Math. Phys. Wave propagation. Scattering theory. (Ed. by M. Sh. Birman) **12**, 41–54 (1987). English translation in Amer. Math. Soc. Transl. Ser. 2. **157**, 37–49 (1993).
- [11] “Faddeev equations with additional channels”; (in Russian), with Yu. A. Kuperin, S. P. Merkuriev, and A. K. Motovilov.
In: Quantum systems theory with strong interactions, Kalinin, University of Kalinin, 4–11 (1987).

- [12] “Internal degrees of freedom in the Coulomb two-body problem”; (in Russian), with Yu. A. Kuperin and Yu. B. Melnikov.
In: Quantum systems theory with strong interactions, Kalinin, University of Kalinin, 65–77 (1987).
- [13] “Scattering on a dynamical quark bag”; (in Russian), with Yu. A. Kuperin and B. S. Pavlov.
Vestnik Leningrad. Univ. Fiz. Khim. **4**, 60–62 (1987).
- [14] “Quantum few-body problem with internal structure I. Two-body problem”; (in Russian), with Yu. A. Kuperin, S. P. Merkuriev, A. K. Motovilov, and B. S. Pavlov.
Theor. Math. Phys. **75**, 630–639 (1988).
- [15] “Quantum few-body problem with internal structure II. Three-body problem”; (in Russian), with Yu. A. Kuperin, S. P. Merkuriev, A. K. Motovilov, and B. S. Pavlov.
Theor. Math. Phys. **76**, 834–847 (1988).
- [16] “Algebraic theory of extensions for particles with internal structure”; (in Russian), with Yu. A. Kuperin, S. P. Merkuriev, and A. K. Motovilov.
Soviet. Nuclear Phys. **48**, 224–231, (1988).
- [17] “Coulomb two-body problem with internal structure”; (in Russian), with Yu. A. Kuperin and Yu. B. Melnikov.
Theor. Math. Phys. **74**, 73–79 (1988).
- [18] “Hierarchy of time scales in the case of weak diffusion”; (in Russian), with V. A. Buslov.
Theor. Math. Phys. **76**, 818–826 (1988).
- [19] “Adiabatic representation for Faddeev equations”; (in Russian), with Yu. A. Kuperin.
Vestnik Leningrad. Univ. Fiz. Khim. **2**, 71–74, (1989).
- [20] “The operator method for excluding forbidden states”; (in Russian), with Yu. A. Kuperin and Yu. B. Melnikov.
Vestnik Leningrad. Univ. Fiz. Khim. **3**, 78–81 (1989).
- [21] “Energy-dependent interactions and the extensions theory”;
Lecture Notes in Physics **324**, 28–39 (1989).
- [22] “A resonating group model with extended channel space”; with Yu. A. Kuperin and Yu. B. Melnikov.
Lecture Notes in Physics **324**, 146–159 (1989).
- [23] “An exactly solvable model of a crystal with non-point atoms”; with Yu. A. Kuperin and B. S. Pavlov.
Lecture Notes in Physics **324**, 267–273 (1989).
- [24] “The Faddeev method for three-body systems with additional degrees of freedom”; (in Russian), with Yu. A. Kuperin, Yu. B. Melnikov, S. P. Merkuriev, and E. A. Yarevskii.
Ukrain. Fiz. Journ. **34**, 1613–1618 (1990).

- [25] “An extensions theory setting for scattering by breathing bag”; with Yu. A. Kuperin and B. S. Pavlov.
J. Math. Phys. **31**, 199–201 (1990).
- [26] “Extended Hilbert space approach to few-body problems”; with Yu. A. Kuperin, S. P. Merkuriev, A. K. Motovilov, and B. S. Pavlov.
J. Math. Phys. **31**, 1681–1690 (1990).
- [27] “Point interactions with an internal structure as limits of nonlocal separable potentials”; with S. E. Cheremchantsev.
Operator Theory: Advances and Appl. **46**, 179–182 (1990).
- [28] “Point interactions with an internal structure as a limit of separable potentials”; (in Russian), with S. E. Cheremchantsev.
Zap. Nauchn. Sem. Leningrad. Otdel. Mat. Inst. Steklov. (LOMI) **182**, 113–122 (1990).
- [29] “Review of new results”; An appendix to the Russian translation of the monograph “Solvable Models in Quantum Mechanics” by S. Albeverio, F. Gesztesy, R. Høegh-Krohn, and H. Holden, pp. 501–504. Mir Publishers, Moscow, 1991.
- [30] “Life times and lower eigenvalues of an operator of small diffusion”; with V. A. Buslov.
Math. Notes **51**, 20–31 (1992).
- [31] “Semiboundedness of the energy operator of a three-particle system with pair interactions of δ -function type”; (in Russian).
Algebra i Analiz **4**, 155–171 (1992). English translation in St. Petersburg Math. J. **4**, 967–980 (1993).
- [32] “Asymptotics of the Fourier transform of self-affine measures”; (in Russian).
Dokl. Akad. Nauk **333**, 140–143 (1993). English translation in Russian Acad. Sci. Dokl. Math., **48**, 455–460 (1994).
- [33] “Asymptotic expansions for Fourier transform of singular self-affine measures”;
J. Math. Anal. Appl. **187**, 259–286 (1994).
- [34] “Quantum scattering on a Cantor Bar”; with B. S. Pavlov.
J. Math. Phys. **35**, 1522–1531 (1994).
- [35] “Point interactions in the problem of three quantum particles with internal structure”; (in Russian), with V. V. Melezhik, and A. K. Motovilov.
Teoret. Mat. Fiz. **102**, 258–282 (1995). English translation in Theor. Math. Phys. **102**, 188–207 (1995).
- [36] “Asymptotic spectral analysis of a small diffusion operator and the life times of the corresponding diffusion process”; with V. N. Kolokol'tsov.
Russian J. Math. Phys. **4**, 341–360 (1996).
- [37] “Attractors in a model related to the three-body quantum problem”; with S. Albeverio.
C.R. Acad. Sci. Paris, Sér. I. Math. **323**, 693–698 (1996).
- [38] “Two sides of a coin: the Efimov Effect and collapse in a three-body system with point interactions. I.”; (in Russian), with V. V. Melezhik.

- Theoret. Mat. Fiz. **107**, 415–432 (1996). English translation in Theor. Math. Phys. **107**, 755–769 (1996).
- [39] “Nontrivial attractors in a model related to the three-body quantum problem”; with S. Albeverio.
Acta Appl. Math. **48**, 113–184 (1997).
- [40] “Limit behavior in a singular perturbation problem, regularized convolution operators and the three-body problem”; with S. Albeverio.
Operator Theory: Advances and Appl. **102**, 1–10 (1998).
- [41] “The Efimov effect and an extended Szegő-Kac limit theorem”; with S. Albeverio and S. Lakaev.
Lett. Math. Phys. **43**, 73–85 (1998).
- [42] “An addendum to Krein’s formula”; with F. Gesztesy and E. Tsekanovskii.
J. Math. Anal. Appl. **222**, 594–606 (1998).
- [43] “The spectral shift operator”; with F. Gesztesy and S. N. Naboko.
Operator Theory: Advances and Appl. **108**, 59–90 (1999).
- [44] “Generalized eigenfunctions under singular perturbations”; with S. Albeverio and V. Koshmanenko.
Methods of Functional Analysis and Topology **5**, 13–28 (1999).
- [45] “The Ξ operator and its relation to the Krein’s spectral shift function”; with F. Gesztesy.
J. Analyse Math. **81**, 139–183 (2000).
- [46] “Some applications of the spectral shift operator”; With F. Gesztesy.
In: Operator Theory and its Applications, Fields Institute Communication Series, Vol. **26**, 267–292. Amer. Math. Soc., Providence, RI, 2000.
- [47] “Monotonicity and concavity properties of the spectral shift function”; with F. Gesztesy and A. K. Motovilov.
In: Stochastic Processes, Physics and Geometry: New Interplays. II. A Volume in Honor of Sergio Albeverio, Canadian Math. Soc. Conference Proceedings, Vol. **29**, 207–222. Amer. Math. Soc., Providence, RI, 2000.
- [48] “Extension of the Ahiezer-Kac determinant formula to the case of real-valued symbols with two real-valued zeros”; with S. Albeverio.
Acta Appl. Math. **62**, 155–186 (2000).
- [49] “Some applications of operator-valued Herglotz functions”; with F. Gesztesy, N. J. Kalton, and E. Tsekanovskii.
Operator Theory: Advances and Appl. **123**, 271–321 (2001).
- [50] “Ahiezer-Kac-type Fredholm determinant asymptotics for convolution operators with rational symbols”; with S. Albeverio.
Trans. Amer. Math. Soc. **353**, 1985–1993 (2001).

- [51] “Uniqueness results for matrix-valued Schrödinger, Jacobi, and Dirac-type operators”; with A. Kiselev and F. Gesztesy.
Math. Nachr. **239/240**, 103–145 (2002).
- [52] “Matrix-valued generalizations of the theorems of Borg and Hochstadt”: With E. D. Belokolos, F. Gesztesy, and L. A. Sakhnovich.
Recent Advances in Evolution Equations, G. Ruiz Goldstein, R. Nagel, and S. Romanelli (eds.), Lecture Notes in Pure and Applied Mathematics, Marcel Dekker, New York, **234** 1–34 (2003).
- [53] “ $SL_2(\mathbf{R})$, exponential representation of Herglotz functions, and spectral averaging”: with F. Gesztesy.
(Russian) Algebra i Analiz **15** 104–144; (2003), translation in St. Petersburg Math. J. **15**, 393–418 (2004).
- [54] “Graph Subspaces and The Spectral Shift Function”; with S. Albeverio and A. K. Motovilov.
Can. J. Math, **55**, 449–503 (2003).
- [55] “On a subspace perturbation problem”; with V. Kostrykin and A. K. Motovilov.
Proc. AMS, **131**, 3469–3476 (2003).
- [56] “Existence and uniqueness of solutions to the operator Riccati equation. A geometric approach”; with V. Kostrykin and A. K. Motovilov.
Advances in differential equations and mathematical physics (Birmingham, AL, 2002), Contemp. Math., **327**, 181–198. Amer. Math. Soc., Providence, RI, 2003.
- [57] “(Modified) Fredholm determinants for operators with matrix-valued semi-separable integral kernels revisited”; with F. Gesztesy.
Integral Equations Operator Theory **47**, 457–497 (2003).
- [58] Erratum: “(Modified) Fredholm determinants for operators with matrix-valued semi-separable integral kernels revisited”; with F. Gesztesy.
Integral Equations Operator Theory **48**, 425–426 (2004).
- [59] “A generalization of the $\tan 2\theta$ theorem”; with V. Kostrykin and A. K. Motovilov.
Operator Theory: Advances and Applications **149**, 349–372 (2004).
- [60] “On the existence of solutions to the operator Riccati equation and the $\tan \theta$ theorem”; with V. Kostrykin and A. K. Motovilov.
Integral Equations Operator Theory **51**, 121–140 (2005).
- [61] “The singularly continuous spectrum and non-closed invariant subspaces”; with V. Kostrykin.
Operator Theory: Advances and Applications, **160**, 299 – 309 (2005).
- [62] “Perturbation of spectra and spectral subspaces”; with V. Kostrykin and A. K. Motovilov.
Trans. Amer. Math. Soc. **359**, 77–89 (2007).

- [63] “The threshold effects for the two-particle Hamiltonians on lattices”; With S. Albeverio, S. N. Lakaev, and Z. I. Muminov.
Commun. Math. Phys., **262**, 91 - 115 (2006).
- [64] “The adiabatic theorem of Quantum Mechanics and the Riccati equation”; With V. Kostrykin.
in J.-C. Zambrini (ed.), ”XIV-th International Congress on Mathematical Physics” 605–610, (Proceedings of ICMP 2003, Lisbon, Portugal), World Scientific Publ., Hackensack, NJ, 2005.
- [65] “Evans Functions and Modified Fredholm Determinants”; With F. Gesztesy and Y. Latushkin.
Oberwolfach Workshop on *Spectral Theory in Banach Spaces and Harmonic Analysis*, N. Kalton, A. G. R. McIntosh, and L. Weis (organizers), Oberwolfach Report **36**, 1950–1953 (2004).
- [66] “The Birman-Schwinger principle in von Neumann algebras of finite type”; With V. Kostrykin and A. Skripka.
Journal of Functional Analysis (to appear).
- [67] “On μ -scale invariant operators”; With E. Tsekanovskii.
Methods of Functional Analysis and Topology (to appear).