

Babich, V. M.; Budylin, A. M.; Dmitrieva, L. A.; Fedotov, A. A.; Komech, A. I.; Levin, S. B.; Perel, M. V.; Rybakina, E. A.; Sukhanov, V. V.

On the mathematical work of Vladimir Savel'evich Buslaev. (English. Russian original)

Zbl 1304.35001

St. Petersburg. Math. J. 25, No. 2, 151-174 (2014); translation from Algebra Anal. 25, No. 2, 3-36 (2013).

From the text: V. S. Buslaev died on March 14, 2012, one month before his 75th anniversary. He was a brilliant scientist, one of the leaders of the modern St. Petersburg mathematical school, and he gained worldwide recognition. Buslaev was a mathematician of great capacity, and his field of interest was amazingly wide: he obtained principal results concerning quantum and classical trace formulas, diffraction and wave propagation, quantum scattering theory and integrable nonlinear equations, quasiclassical pseudodifferential operators with discontinuous symbols and difference equations with periodic coefficients, soliton stability for nonintegrable nonlinear equations and asymptotic quasiclassical and adiabatic methods. He published more than 150 papers and two books.

MSC:

35-00 General reference works (handbooks, dictionaries, bibliographies, etc.) pertaining to partial differential equations

01A70 Biographies, obituaries, personalia, bibliographies

Keywords:

trace formulas; quantum scattering problems; diffraction; completely integrable nonlinear equations; sound propagation; periodic Schrödinger equation; pseudodifferential operators

Biographic references:

Buslaev, Vladimir Savel'evich

Full Text: [DOI](#)

References:

- [1] V. S. Buslaev, Dispersion relations in the nonrelativistic scattering theory with spin-orbit interaction, Soviet Physics JETP 12 (1960), 990 – 992.
- [2] V. S. Buslaev and L. D. Faddeev, Formulas for traces for a singular Sturm-Liouville differential operator, Soviet Math. Dokl. 1 (1960), 451 – 454. · [Zbl 0129.06501](#)
- [3] V. S. Buslaev, Trace formulas for the Schrödinger operator in a three-dimensional space, Dokl. Akad. Nauk SSSR 143 (1962), 1067 – 1070 (Russian).
- [4] V. Buslaev and V. Fomin, An inverse scattering problem for the one-dimensional Schrödinger equation on the entire axis, Vestnik Leningrad. Univ. 17 (1962), no. 1, 56 – 64 (Russian, with English summary). · [Zbl 0243.34013](#)
- [5] V. S. Buslaev, On the short-wave asymptotic limit in the problem of diffraction by convex bodies, Soviet Physics Dokl. 7 (1963), 685 – 687. · [Zbl 0124.44801](#)
- [6] V. S. Buslaev, Formulas for the short-wave asymptotic behavior in the diffraction problem by convex bodies, Vestnik Leningrad. Univ. 17 (1962), no. 13, 5 – 21 (Russian).
- [7] -, Short-wave asymptotic behavior in problem of diffraction on convex bodies, PhD-thesis, Leningrad. Univ., Leningrad, 1963. (Russian)
- [8] V. S. Buslaev, Short-wave asymptotic behaviour in the problem of diffraction by smooth convex contours, Trudy Mat. Inst. Steklov. 73 (1964), 14 – 117 (Russian).
- [9] -, Application of continuous integrals to the derivation of the short-wave asymptotic limit in diffraction problems, Dokl. Akad. Nauk SSSR 160 (1965), no. 3, 566-569; English transl., Soviet Physics Dokl. 10 (1965), 17-19.
- [10] V. S. Buslaev, The trace formulae and certain asymptotic estimates of the kernel of the resolvent for the Schrödinger operator in three-dimensional space, Probl. Math. Phys., No. I, Spectral Theory and Wave Processes (Russian), Izdat. Leningrad. Univ., Leningrad, 1966, pp. 82 – 101 (Russian).
- [11] -, Adding to the article: V. M. Babich, On analytic extension to the second sheet of the resolvent of exterior problems for the Laplace operator, Theory Funct., Funct. Anal. and its Appl., Vol. 3, Har'k. Univ., Har'kov, 1966, pp. 151-157. (Russian)

- [12] V. S. Buslaev, Continual integrals and asymptotic behavior of solutions of parabolic equations as $\lambda \rightarrow \infty$. Applications to diffraction, Problems of Mathematical Physics, No. 2, Spectral Theory, Diffraction Problems (Russian), Izdat. Leningrad. Univ., Leningrad, 1967, pp. 85 – 107 (Russian).
- [13] V. S. Buslaev, A trace formula in geodesic theory, Dokl. Akad. Nauk SSSR 182 (1968), 743 – 746 (Russian).
- [14] Математические проблемы релятивистской физики, Транслатед фром тхе Енглиш бы В. С. Буслаев. Едитед бы Л. Д. Фаддеев, Издат. "Мир", Мосцоц, 1968 (Руссиан).
- [15] V. S. Buslaev, Invariant description of the Maslov canonical operator, Dokl. Akad. Nauk SSSR 184 (1969), no. 1, 59-62. (Russian)
- [16] V. S. Buslaev, The generating integral and the Maslov canonical operator in the WKB method, Funkcional. Anal. i Priložen. 3 (1969), no. 3, 17 – 31 (Russian). · [Zbl 0204.44805](#)
- [17] V. S. Buslaev and S. P. Merkur'ev, Trace equation for a three-particle system, Soviet Physics Dokl. 14 (1969), 1055 – 1057. · [Zbl 0197.26101](#)
- [18] K. Friedrichs, On differential operators in Hilbert spaces, Transl. from the English by V. S. Buslaev, Mir, Moscow, 1969. (Russian) · [Zbl 65.0508.02](#)
- [19] V. S. Buslaev, Spectral identities and the trace formula in the Friedrichs model, Problems of Mathematical Physics, No. 4: Spectral Theory. Wave Processes (Russian), Izdat. Leningrad. Univ., Leningrad, 1970, pp. 48 – 60 (Russian).
- [20] V. S. Buslaev and M. M. Skriganov, Characteristic property of Weyl quantization, Teoret. Mat. Fiz. 2 (1970), no. 3, 292 – 296 (Russian, with English summary).
- [21] V. S. Buslaev and V. B. Matveev, Wave operators for the Schrödinger equation with slowly decreasing potential, Teoret. Mat. Fiz. 2 (1970), no. 3, 367 – 376 (Russian, with English summary).
- [22] V. S. Buslaev and S. P. Merkur'ev, Relationship between the third visual coefficient and scattering matrix, Teoret. Mat. Fiz. 5 (1970), no. 3, 372-387. (Russian)
- [23] V. S. Buslaev, Generalized wave operators, Vestnik Leningrad. Univ. 25 (1970), no. 13, 153 – 154 (Russian, with English summary). · [Zbl 0245.47007](#)
- [24] V. S. Buslaev, Quantization and the WKB method, Trudy Mat. Inst. Steklov. 110 (1970), 5 – 28 (Russian). · [Zbl 0234.35011](#)
- [25] V. S. Buslaev and S. P. Merkur'ev, The third group integral in quantum mechanical statistics, Trudy Mat. Inst. Steklov. 110 (1970), 29 – 44 (Russian).
- [26] V. S. Buslaev, Potential theory and geometric optics, Zap. Naučn. Sem. Leningrad. Otdel. Mat. Inst. Steklov. (LOMI) 22 (1971), 175 – 180 (Russian).
- [27] V. S. Buslaev, Scattered plane waves, spectral asymptotics and trace formulae in exterior problems, Dokl. Akad. Nauk SSSR 197 (1971), 999 – 1002 (Russian).
- [28] A. L. Alimov and V. S. Buslaev, A continual integral for a second order parabolic equation, Vestnik Leningrad. Univ. 1 (1972), 5 – 14 (Russian, with English summary). · [Zbl 0226.35042](#)
- [29] V. S. Buslaev, Trace formulas in multichannel problems, Zap. Naučn. Sem. Leningrad. Otdel. Mat. Inst. Steklov. (LOMI) 27 (1972), 47 – 66 (Russian). Boundary value problems of mathematical physics and related questions in the theory of functions, 6. · [Zbl 0339.47014](#)
- [30] V. S. Buslaev, Trace formula and singularities in the scattering matrix for a system of three one-dimensional particles. The third group integral, Teoret. Mat. Fiz. 16 (1973), no. 2, 247 – 259 (Russian, with English summary).
- [31] -, Short-wave asymptotics in the vicinity of a boundary source, Proc. IV All-Union Symp. Diffraction and Wave Propagation, Vol. 1, Moscow-Erevan, 1973, pp. 37-40. (Russian)
- [32] -, The spectral asymptotics and trace formula for the Schrödinger equation, Doctoral thesis, Leningrad. Univ., Leningrad, 1973. (Russian)
- [33] V. S. Buslaev and M. M. Skriganov, Coordinate asymptotic behavior of the solution of the scattering problem for the Schrödinger equation, Teoret. Mat. Fiz. 19 (1974), 217 – 232 (Russian, with English summary). · [Zbl 0291.35020](#)
- [34] V. S. Buslaev, On the high temperature asymptotic behavior of quantum group integrals, Reports Inst. Theor. Phys., Roland Eotvos Univ., ITP, Budapest, no. 344, 1974.
- [35] V. S. Buslaev, The asymptotic behavior of the spectral characteristics of exterior problems for the Schrödinger operator, Izv. Akad. Nauk SSSR Ser. Mat. 39 (1975), 149 – 235, 240 (Russian). · [Zbl 0311.35010](#)
- [36] V. S. Buslaev, Local spectral asymptotic behavior of the Green's function in exterior problems for the Schrödinger operator, Vestnik Leningrad. Univ. No. 1 Mat. Meh. Astronom. Vyp. 1 (1975), 55 – 60, 189 (Russian, with English summary). Collection of articles dedicated to the memory of Academician V. I. Smirnov. · [Zbl 0306.47005](#)
- [37] -, Asymptotic formulas on the continuous spectrum of differential operators, Uspekhi Mat. Nauk 32 (1977), no. 1, 244-245. (Russian)
- [38] -, Spectral asymptotics for exterior boundary-value problems, Uspekhi Mat. Nauk 32 (1977), no. 1, 233-234. (Russian)
- [39] V. S. Buslaev and A. F. Vakulenko, Unitary regularization of three-particle scattering, Vestnik Leningrad. Univ. 13 Mat. Meh. Astronom. vyp. 3 (1977), 22 – 30, 169 (Russian, with English summary). · [Zbl 0375.47005](#)
- [40] V. S. Buslaev and A. F. Vaculenko, A unitary regularizing operator for three-particle scattering, Partial Differential Equations, Proc. All-Union Conf., dedicated to I. G. Petrivskij (Moscow, 1976), Mosc. Univ., Moscow, 1978, pp. 56-88. (Russian)
- [41] V. S. Buslaev, S. P. Merkur'ev, and S. P. Salikov, Diffraction characteristics of scattering in a quantum system of three one-dimensional particles, Scattering theory. Theory of oscillations (Russian), Probl. Mat. Fiz., vol. 9, Leningrad.

- Univ., Leningrad, 1979, pp. 14 – 30, 183 (Russian). · [Zbl 0494.47010](#)
- [42] V. S. Buslaev, S. P. Merkur'ev, and S. P. Salikov, Description of pair potentials for which the scattering in the quantum system of three one-dimensional particles is free of diffractive effects, *Zap. Nauchn. Sem. Leningrad. Otdel. Mat. Inst. Steklov. (LOMI)* 84 (1979), 16 – 22, 310, 316 (Russian, with English summary). *Boundary value problems of mathematical physics and related questions in the theory of functions*, 11. · [Zbl 0413.35058](#)
- [43] V. S. Buslaev, *Variational calculus*. Textbook, Izd. Leningrad. Univ., Leningrad, 1980. · [Zbl 0489.49001](#)
- [44] -, Using the determinant representation of solutions of the Korteweg-de Vries equation for exploring their asymptotic behavior at large times, *Uspekhi Mat. Nauk* 36 (1981), no. 4, 217-218. (Russian)
- [45] -, The structure of an acoustic field near the surface of a deep sea, *Proc. VIII All-Union Symp. Diffraction and Wave Propagation (L'vov, 1981)*, vol. 3, L'vov, 1981, pp. 174-177. (Russian)
- [46] V. S. Buldyrev and N. S. Grigor'eva, Asymptotic methods in problems of sound propagation in oceanic wave guides and their numerical realization, *Zap. Nauchn. Sem. Leningrad. Otdel. Mat. Inst. Steklov. (LOMI)* 117 (1981), 39 – 77, 197 (Russian, with English summary). *Mathematical questions in the theory of wave propagation*. 12. · [Zbl 0482.76078](#)
- [47] V. S. Buslaev, The structure of an acoustic field near the surface of a deep sea. I, *Zap. Nauchn. Sem. Leningrad. Otdel. Mat. Inst. Steklov. (LOMI)* 117 (1981), 98 – 111, 198 (Russian, with English summary). *Mathematical questions in the theory of wave propagation*, 12. · [Zbl 0482.76077](#)
- [48] V. S. Buslaev, A wave field near the boundary of a wide refractive wave guide, *Dokl. Akad. Nauk SSSR* 262 (1982), no. 1, 75 – 78 (Russian).
- [49] V. S. Buslaev and E. A. Rybakina, The trace formula in Hamiltonian mechanics, *Zap. Nauchn. Sem. Leningrad. Otdel. Mat. Inst. Steklov. (LOMI)* 115 (1982), 40 – 60, 306 (Russian). *Boundary value problems of mathematical physics and related questions in the theory of functions*, 14. · [Zbl 0537.70016](#)
- [50] V. S. Buslaev and V. V. Sukhanov, Asymptotic behavior as $t \rightarrow \infty$ of the solutions of the equation $\psi'' + \lambda \psi + (\psi^2/4) = 0$ with a potential ψ satisfying the Korteweg-de Vries equation. I, *Spectral theory. Wave processes, Probl. Mat. Fiz.*, vol. 10, Leningrad. Univ., Leningrad, 1982, pp. 70 – 102, 298 (Russian). · [Zbl 0513.35011](#)
- [51] V. S. Buslaev and A. A. Fedotov, Interference nature of an acoustic field near the surface of a deep sea, *Proc. III Far-Eastern Acoustic. Conf.*, Vol. 1, Vladivostok, 1982, pp. 115-118. (Russian)
- [52] V. S. Buslaev and V. V. Sukhanov, Asymptotic behavior of solutions of the Korteweg-de Vries equation for large times, *Zap. Nauchn. Sem. Leningrad. Otdel. Mat. Inst. Steklov. (LOMI)* 120 (1982), 32 – 50 (Russian, with English summary). *Questions in quantum field theory and statistical physics*, 3. · [Zbl 0514.35077](#)
- [53] V. S. Buslaev, Description of the acoustic field of a one-point source in a deep sea in terms of the angular spectrum of rays, *Proc. X All-Union Acoustical Conf.*, Sec. A, Moscow, 1983, pp. 17-20.
- [54] V. S. Buslaev, Regularization of many-particle scattering, *Proceedings of the International Congress of Mathematicians*, Vol. 1, 2 (Warsaw, 1983) PWN, Warsaw, 1984, pp. 1149 – 1159. · [Zbl 0617.47006](#)
- [55] V. S. Buslaev, A. G. Alenitsyn and M. V. Perel', Calculation of an acoustic field near the surface of a deep sea, *Voprosy sudostroeniya, Ser. Akustika* 18 (1984). (Russian)
- [56] V. S. Buslaev, Adiabatic perturbation of a periodic potential, *Teoret. Mat. Fiz.* 58 (1984), no. 2, 233 – 243 (Russian, with English summary). · [Zbl 0534.34064](#)
- [57] V. S. Buslaev and E. A. Nalimova, The trace formula in general Hamiltonian mechanics, *Teoret. Mat. Fiz.* 60 (1984), no. 3, 344 – 355 (Russian, with English summary). · [Zbl 0598.70018](#)
- [58] V. S. Buslaev and E. A. Nalimova, The trace formula in Lagrangian mechanics, *Teoret. Mat. Fiz.* 61 (1984), no. 1, 52 – 63 (Russian, with English summary). · [Zbl 0598.70023](#)
- [59] V. S. Buslaev and V. V. Sukhanov, Asymptotic behavior as $t \rightarrow \infty$ of the solutions of the equation $\psi'' + \lambda \psi + (\psi^2/4) = 0$ with a potential ψ satisfying the Korteweg-de Vries equation. II, *Zap. Nauchn. Sem. Leningrad. Otdel. Mat. Inst. Steklov. (LOMI)* 138 (1984), 8 – 32 (Russian, with English summary). *Boundary value problems of mathematical physics and related problems in the theory of functions*, 16. · [Zbl 0559.35074](#)
- [60] V. S. Buslaev and M. V. Perel', Structure of the acoustic field in a deep sea at small depths and long-range distances, *Vestnik Leningrad. Univ.* 1984, vyp. 22, 9-17. (Russian)
- [61] V. S. Buslaev and V. S. Buldyrev, Sound propagation in the ocean, *Preprint IRE Acad. Nauk SSSR* 45 (1984), no. 417, 1-55. (Russian)
- [62] -, Qualitative structure of the acoustic field in the ocean, *Preprint IRE Acad. Nauk SSSR* 44 (1984), no. 416, 1-55. (Russian)
- [63] V. S. Buslaev and E. A. Rybakina, The trace formula for nonlinear scalar field, *Vestnik Leningrad. Univ.* 1985, vyp. 18, 74-76. (Russian) · [Zbl 0561.70016](#)
- [64] V. S. Buslaev, Generalization of the VKB-formulas to equations with periodic coefficients, *Proc. IX All-Union Symp. Diffraction and Wave Propagation*, Vol. 2, Tbilisi, 1985, 58-61. (Russian)
- [65] V. S. Buslaev and M. V. Perel', The one-point source field in a wide refraction waveguide in the case where the ray approximation conditions near the boundary are violated, *Proc. IX All-Union Symp. Diffraction and Wave Propagation*, vol. 2, Tbilisi, 1985, 526-529. (Russian)
- [66] V. S. Buslaev and V. V. Sukhanov, Asymptotic behavior as $(t \rightarrow \infty)$ of the solutions of the equation $(\Psi_{xx} + u \Psi + \frac{\lambda}{4} \Psi = 0)$ with potential $u(x)$ which satisfies the Korteweg-de Vries equation. II, *Tenth All-Union School on Operator Theory in Func. Space*, Novosibirsk, 1985. (Russian) · [Zbl 0582.35008](#)
- [67] A. M. Budylin and V. S. Buslaev, Asymptotic behavior of spectral characteristics of an integral operator with difference kernel on expanding domains, *Dokl. Akad. Nauk SSSR* 287 (1986), no. 3, 529 – 532 (Russian). · [Zbl 0635.47006](#)

- [68] V. S. Buslaev, L. D. Faddeev, and L. A. Takhtajan, Scattering theory for the Korteweg-de Vries (KdV) equation and its Hamiltonian interpretation, *Phys. D* 18 (1986), no. 1-3, 255 – 266. Solitons and coherent structures (Santa Barbara, Calif., 1985). · [Zbl 0618.35100](#) · [doi:10.1016/0167-2789\(86\)90186-7](#)
- [69] V. S. Buslaev and M. V. Perel', Impact of the velocity profile near the surface on the structure of the acoustic field in a deep sea, *Akust. Z.* 32 (1986), no. 3, 296-302. (Russian)
- [70] V. S. Buslaev and E. A. Rybakina, The trace formula for nonlinear Klein-Gordon equation, *Uspekhi Mat. Nauk* 41 (1986), no. 4, c. 155. (Russian) · [Zbl 0807.35132](#)
- [71] V. S. Buslaev and V. S. Byldyrev, Application of analytical and numerical methods in problems of sound propagation in the ocean, *Acoustical waves in ocean*, Nauka, Moscow, 1987, pp. 24-34. (Russian)
- [72] V. S. Buslaev and N. A. Kaliteevskii, Principal singularities of the scattering matrix for a system of one-dimensional particles, *Teoret. Mat. Fiz.* 70 (1987), no. 2, 266 – 277 (Russian, with English summary).
- [73] V. S. Buslaev and A. A. Fedotov, The influence of a horizontal inhomogeneity layer on sound propagation in deep sea in the case where the adiabaticity condition is violated, *Akust. Z.* 32 (1987), no. 11, 27-31. (Russian)
- [74] -, Wave propagation in a smoothly inhomogeneous refraction waveguide with boundaries, *Vestnik Leningrad. Univ.* 1987, vyp. 4, 71-73. (Russian)
- [75] V. S. Buslaev and V. G. Chernenko, Spectral identities for a system of many quantum particles, *Vestnik Leningrad. Univ. Fiz. Khim.* vyp. 2 (1987), 16 – 21, 134 (Russian, with English summary). · [Zbl 1268.81072](#)
- [76] V. S. Buslaev and L. A. Dmitrieva, Adiabatic perturbation of a periodic potential. II, *Teoret. Mat. Fiz.* 73 (1987), no. 3, 430 – 442 (Russian, with English summary). · [Zbl 0643.34068](#)
- [77] V. S. Buslaev and E. A. Rybakina, A trace formula for the nonlinear Klein-Gordon equation, *Wave propagation. Scattering theory* (Russian), *Probl. Mat. Fiz.*, vol. 12, Leningrad. Univ., Leningrad, 1987, pp. 190 – 213, 259 (Russian). · [Zbl 0807.35132](#)
- [78] V. S. Buslaev, Quasiclassical approximation for equations with periodic coefficients, *Uspekhi Mat. Nauk* 42 (1987), no. 6(258), 77 – 98, 248 (Russian).
- [79] -, On quasiclassical approximation for equations with periodic coefficients, In: *Moscow Mathematical Society*, *Uspekhi Mat. Nauk* 42 (1987), no. 4, 133. (Russian)
- [80] V. S. Buslaev and V. G. Chernenko, Remarks on regularization of trace formulas for systems of three particles, *Dep. VINITI*, 490-b 83, 15.01.1988. (Russian)
- [81] A. D. Avdeev, A. N. Popov, and V. S. Buslaev, Wave propagation in nonregular waveguides, *Proc. IX All-Union School on Diffraction and Wave Propagation*, Kazan, 1988, pp. 5-113. (Russian)
- [82] V. S. Buslaev, Quasiclassical approximation for equations with periodic coefficients, *Uspekhi Mat. Nauk* 42 (1987), no. 6(258), 77 – 98, 248 (Russian).
- [83] V. S. Buslaev and L. A. Dmitrieva, Bloch electrons in an external electric field, *Schrödinger operators, standard and nonstandard* (Dubna, 1988) *World Sci. Publ.*, Teaneck, NJ, 1989, pp. 102 – 129. · [Zbl 0725.34097](#)
- [84] V. S. Buslaev and L. A. Dmitrieva, A Bloch electron in an external field, *Algebra i Analiz* 1 (1989), no. 2, 1 – 29 (Russian); English transl., *Leningrad Math. J.* 1 (1990), no. 2, 287 – 320. · [Zbl 0714.34128](#)
- [85] V. S. Buslaev and L. A. Dmitrieva, Geometrical aspects of the Bloch electrons theory in external fields, *Topological phases in quantum theory* (Dubna, 1988) *World Sci. Publ.*, Teaneck, NJ, 1989, pp. 218 – 250.
- [86] -, Spectral properties of the Bloch electrons in external fields, *Prep. UC-Berkeley*, PAM-477, 1989.
- [87] V. S. Buslaev, Spectral properties of the operators $\Delta_{\epsilon} - \Delta_{\epsilon}^{-1} + \epsilon^{-1} \Delta_{\epsilon}^{-1} + \epsilon^{-1} \Delta_{\epsilon}^{-1}$, Δ_{ϵ} is periodic, Order, disorder and chaos in quantum systems (Dubna, 1989) *Oper. Theory Adv. Appl.*, vol. 46, Birkhäuser, Basel, 1990, pp. 85 – 107. · [Zbl 0723.47042](#)
- [88] -, Rotation points in the asymptotic theory of the Schrödinger equation with periodic coefficients, *Wave and Diffraction-90*, Vol. 2, *Phys. Soc. SSSR*, Moscow, 1990, 25-28. (Russian)
- [89] V. Buslaev, On spectral properties of adiabatically perturbed Schroedinger operators with periodic potentials, *Séminaire sur les Équations aux Dérivées Partielles*, 1990 – 1991, *École Polytech.*, Palaiseau, 1991, pp. Exp. No. XXIII, 15.
- [90] V. S. Buslaev, Spectral properties of adiabatically perturbed differential operators with the periodic coefficients, *Recent developments in quantum mechanics* (Poiana Braşov, 1989) *Math. Phys. Stud.*, vol. 12, Kluwer Acad. Publ., Dordrecht, 1991, pp. 97 – 112. · [Zbl 0726.34068](#)
- [91] A. M. Budylin and V. S. Buslaev, Quasiclassical integral equations, *Dokl. Akad. Nauk SSSR* 319 (1991), no. 3, 527 – 530 (Russian); English transl., *Soviet Math. Dokl.* 44 (1992), no. 1, 127 – 131. · [Zbl 0769.45009](#)
- [92] A. M. Budylin and V. S. Buslaev, Reflection operators and their applications to asymptotic investigations of semiclassical integral equations, Estimates and asymptotics for discrete spectra of integral and differential equations (Leningrad, 1989 – 90) *Adv. Soviet Math.*, vol. 7, Amer. Math. Soc., Providence, RI, 1991, pp. 107 – 157. · [Zbl 0743.45003](#)
- [93] A. M. Budylin and V. S. Buslaev, On the asymptotic behavior of the spectral characteristics of an integral operator with a difference kernel on expanding domains, *Differential equations. Spectral theory. Wave propagation* (Russian), *Probl. Mat. Fiz.*, vol. 13, Leningrad. Univ., Leningrad, 1991, pp. 16 – 60, 305 (Russian, with Russian summary).
- [94] V. S. Buslaev, Optical and acoustical Fourier processors, *Commutative harmonic analysis*, 3 (Russian), *Itogi Nauki i Tekhniki*, Akad. Nauk SSSR, Vsesoyuz. Inst. Nauchn. i Tekhn. Inform., Moscow, 1991, pp. 135 – 180, 267 (Russian). · [Zbl 0843.43012](#)
- [95] V. S. Buslaev and G. S. Perel'(\prime), On nonlinear scattering of states which are close to a soliton, *Astérisque* 210 (1992), 6, 49 – 63. *Méthodes semi-classiques*, Vol. 2 (Nantes, 1991). · [Zbl 0795.35111](#)
- [96] V. S. Buslaev and G. S. Perel'(\prime), Nonlinear scattering: states that are close to a soliton, *Zap. Nauchn. Sem.*

- S.-Peterburg, Otdel. Mat. Inst. Steklov. (POMI) 200 (1992), no. Kraev. Zadachi Mat. Fiz. Smez. Voprosy Teor. Funktsii. 24, 38 – 50, 70, 187 (Russian, with English and Russian summaries); English transl., J. Math. Sci. 77 (1995), no. 3, 3161 – 3169. · [Zbl 0836.35146](#) · [doi:10.1007/BF02364705](#)
- [97] V. S. Buslaev and G. S. Perel'(\prime)\man, Scattering for the nonlinear Schrödinger equation: states that are close to a soliton, Algebra i Analiz 4 (1992), no. 6, 63 – 102 (Russian, with Russian summary); English transl., St. Petersburg Math. J. 4 (1993), no. 6, 1111 – 1142. · [Zbl 0853.35112](#)
- [98] V. S. Buslaev and A. A. Fedotov, Complex WKB-method for Harper's equation, Inst. Mittag-Leffler Report, no. 11, 1993. · [Zbl 0821.34062](#)
- [99] -, On a class of matrices related to Harper's equation, Inst. Mittag-Leffler Report, no. 19, 1993.
- [100] A. M. Budylin and V. S. Buslaev, Quasiclassical integral equations with slowly decreasing kernels on bounded domains, Algebra i Analiz 5 (1993), no. 1, 160 – 178 (Russian, with Russian summary); English transl., St. Petersburg Math. J. 5 (1994), no. 1, 141 – 158. · [Zbl 0794.45001](#)
- [101] Vladimir Buslaev and Alexander Fedotov, The functional structure of the monodromy matrix for Harper's equation, Mathematical results in quantum mechanics (Blossin, 1993) Oper. Theory Adv. Appl., vol. 70, Birkhäuser, Basel, 1994, pp. 321 – 342. · [Zbl 0816.34058](#) · [doi:10.1007/978-3-0348-8545-4_8](#)
- [102] Vladimir Buslaev and Vincenzo Grecchi, Equivalence of unstable anharmonic oscillators and double wells, J. Phys. A 26 (1993), no. 20, 5541 – 5549. · [Zbl 0817.47077](#)
- [103] V. S. Buslaev and A. A. Fedotov, The complex WKB method for the Harper equation, Algebra i Analiz 6 (1994), no. 3, 59 – 83 (Russian); English transl., St. Petersburg Math. J. 6 (1995), no. 3, 495 – 517. · [Zbl 0839.34066](#)
- [104] V. Buslaev and A. Fedotov, The monodromization and Harper equation, Séminaire sur les Équations aux Dérivées Partielles, 1993 – 1994, École Polytech., Palaiseau, 1994, pp. Exp. No. XXI, 23. · [Zbl 0880.34082](#)
- [105] V. S. Buslaev and G. S. Perel'(\prime)\man, On the stability of solitary waves for nonlinear Schrödinger equations, Nonlinear evolution equations, Amer. Math. Soc. Transl. Ser. 2, vol. 164, Amer. Math. Soc., Providence, RI, 1995, pp. 75 – 98. · [Zbl 0841.35108](#) · [doi:10.1090/trans2/164/04](#)
- [106] A. M. Budylin and V. S. Buslaev, Semiclassical integral equations on the semiaxis, Topics in statistical and theoretical physics, Amer. Math. Soc. Transl. Ser. 2, vol. 177, Amer. Math. Soc., Providence, RI, 1996, pp. 45 – 49. · [Zbl 0869.45003](#) · [doi:10.1090/trans2/177/03](#)
- [107] V. S. Buslaev and A. A. Fedotov, Bloch solutions for difference equations, Algebra i Analiz 7 (1995), no. 4, 74 – 122 (Russian); English transl., St. Petersburg Math. J. 7 (1996), no. 4, 561 – 594. · [Zbl 0847.39002](#)
- [108] A. M. Budylin and V. S. Buslaev, Quasiclassical asymptotics of the resolvent of an integral convolution operator with a sine kernel on a finite interval, Algebra i Analiz 7 (1995), no. 6, 79 – 103 (Russian, with Russian summary); English transl., St. Petersburg Math. J. 7 (1996), no. 6, 925 – 942. · [Zbl 0862.35148](#)
- [109] V. S. Buslaev and A. A. Fedotov, On the point spectrum of difference Schrödinger operators, Preprints of Schrödinger Inst. (Wien), no. 272, 1995.
- [110] A. M. Budylin and V. S. Buslaev, Quasiclassical integral equations and the asymptotic behavior of solutions of the Korteweg-de Vries equation for large time values, Dokl. Akad. Nauk 348 (1996), no. 4, 455 – 458 (Russian). · [Zbl 0956.35114](#)
- [111] V. S. Buslaev and A. A. Fedotov, The Harper equation: monodromization without quasiclassics, Algebra i Analiz 8 (1996), no. 2, 65 – 97 (Russian); English transl., St. Petersburg Math. J. 8 (1997), no. 2, 231 – 254. · [Zbl 0849.34066](#)
- [112] -, Spectral properties of a monodromy matrix for Harper equation, Equations aux Derivées Partielles, (Saint-Jean de Monts., 1996), Exp. no. IV, École Polytech., Palaiseau, 1996, 11 pp. · [Zbl 0874.39006](#)
- [113] Vladimir Buslaev and Alain Grigis, Imaginary parts of Stark-Wannier resonances, J. Math. Phys. 39 (1998), no. 5, 2520 – 2550. · [Zbl 1001.34075](#) · [doi:10.1063/1.532406](#)
- [114] M. V. Buslaeva and V. S. Buslaev, Singularity of the Green function of the nonstationary Schrödinger equation, Funktsional. Anal. i Prilozhen. 32 (1998), no. 2, 80 – 83 (Russian); English transl., Funct. Anal. Appl. 32 (1998), no. 2, 132 – 134. · [Zbl 0920.35008](#) · [doi:10.1007/BF02482598](#)
- [115] V. S. Buslaev, Kronig-Penney electron in a homogeneous electric field, Differential operators and spectral theory, Amer. Math. Soc. Transl. Ser. 2, vol. 189, Amer. Math. Soc., Providence, RI, 1999, pp. 45 – 57. · [Zbl 0935.34072](#) · [doi:10.1090/trans2/189/04](#)
- [116] A. M. Budylin and V. S. Buslaev, The Gelfand-Levitan-Marchenko equation and the long-time asymptotics of the solutions of the nonlinear Schrödinger equation, L. D. Faddeev's Seminar on Mathematical Physics, Amer. Math. Soc. Transl. Ser. 2, vol. 201, Amer. Math. Soc., Providence, RI, 2000, pp. 63 – 78. · [Zbl 0966.35121](#) · [doi:10.1090/trans2/201/05](#)
- [117] A. M. Budylin and V. S. Buslaev, The Gel'(\prime)\fand-Levitan-Marchenko equation and the asymptotic behavior of solutions of the nonlinear Schrödinger equation for large time values, Algebra i Analiz 12 (2000), no. 5, 64 – 105 (Russian); English transl., St. Petersburg Math. J. 12 (2001), no. 5, 761 – 789.
- [118] A. M. Budylin and V. S. Buslaev, Semiclassical pseudodifferential operators with double discontinuous symbols and their application to problems of quantum statistical physics, Partial differential equations and spectral theory (Clausthal, 2000) Oper. Theory Adv. Appl., vol. 126, Birkhäuser, Basel, 2001, pp. 41 – 51. · [Zbl 1136.35466](#)
- [119] Vladimir Buslaev and Alain Grigis, Turning points for adiabatically perturbed periodic equations, J. Anal. Math. 84 (2001), 67 – 143. · [Zbl 0987.35013](#) · [doi:10.1007/BF02788107](#)
- [120] V. S. Buslaev and V. E. Grikurov, Simulation of instability of bright solitons for NLS with saturating nonlinearity, Math. Comput. Simulation 56 (2001), no. 6, 539 – 546. · [Zbl 0972.78019](#) · [doi:10.1016/S0378-4754\(01\)00323-8](#)
- [121] V. Buslaev and A. Fedotov, On the difference equations with periodic coefficients, Adv. Theor. Math. Phys. 5 (2001), no. 6, 1105 – 1168. · [Zbl 1012.39008](#) · [doi:10.4310/ATMP.2001.v5.n6.a5](#)

- [122] Vladimir S. Buslaev and Catherine Sulem, On asymptotic stability of solitary waves for nonlinear Schrödinger equations, *Ann. Inst. H. Poincaré Anal. Non Linéaire* 20 (2003), no. 3, 419 – 475 (English, with English and French summaries). · [Zbl 1028.35139](#) · [doi:10.1016/S0294-1449\(02\)00018-5](#)
- [123] V. Buslaev and L. Pastur, A class of the multi-interval eigenvalue distributions of matrix models and related structures, *Asymptotic combinatorics with application to mathematical physics* (St. Petersburg, 2001) NATO Sci. Ser. II Math. Phys. Chem., vol. 77, Kluwer Acad. Publ., Dordrecht, 2002, pp. 51 – 70. · [Zbl 1041.81024](#)
- [124] Vladimir S. Buslaev and Catherine Sulem, Asymptotic stability of solitary waves for nonlinear Schrödinger equations, *The legacy of the inverse scattering transform in applied mathematics* (South Hadley, MA, 2001) *Contemp. Math.*, vol. 301, Amer. Math. Soc., Providence, RI, 2002, pp. 163 – 181. · [Zbl 1017.35104](#) · [doi:10.1090/conm/301/05163](#)
- [125] V. S. Buslaev, Asymptotic comparison of differential equations, *Algebra i Analiz* 14 (2002), no. 4, 1 – 18 (Russian); English transl., *St. Petersburg Math. J.* 14 (2003), no. 4, 535 – 547. · [Zbl 1055.34104](#)
- [126] V. S. Buslaev, M. V. Buslaeva, and A. Gridzhis, Adiabatic asymptotics of the reflection coefficient, *Algebra i Analiz* 16 (2004), no. 3, 1 – 23 (Russian); English transl., *St. Petersburg Math. J.* 16 (2005), no. 3, 437 – 452.
- [127] V. S. Buslaev and E. A. Grinina, Some remarks on the quantum adiabatic theorem, *Algebra i Analiz* 16 (2004), no. 4, 41 – 53 (Russian); English transl., *St. Petersburg Math. J.* 16 (2005), no. 4, 639 – 648.
- [128] V. S. Buslaev, V. S. Buldyrev and V. A. Franke, Comments on the book: V. A. Fok, *Selected works*, St. Petersburg Univ., SPb., 2003, pp. 379-388.
- [129] A. M. Budylin and V. S. Buslaev, Semiclassical pseudodifferential operators with discontinuous symbols and their applications to the problems of statistical physics, *Nonlinear equations and spectral theory*, Amer. Math. Soc. Transl. Ser. 2, vol. 220, Amer. Math. Soc., Providence, RI, 2007, pp. 45 – 81. · [Zbl 1142.35109](#) · [doi:10.1090/trans2/220/03](#)
- [130] V. S. Buslaev, A. I. Komech, E. A. Kopylova, and D. Stuart, On asymptotic stability of solitary waves in Schrödinger equation coupled to nonlinear oscillator, *Comm. Partial Differential Equations* 33 (2008), no. 4-6, 669 – 705. · [Zbl 1185.35247](#) · [doi:10.1080/03605300801970937](#)
- [131] V. S. Buslaev and V. Yu. Strazdin, The one-dimensional Schrödinger operator on the half-line: a differential equation for eigenfunctions with respect to a spectral parameter, and an analogue of the Freud equation, *Funktsional. Anal. i Prilozhen.* 41 (2007), no. 3, 84 – 88 (Russian); English transl., *Funct. Anal. Appl.* 41 (2007), no. 3, 237 – 240. · [Zbl 1168.34367](#) · [doi:10.1007/s10688-007-0020-0](#)
- [132] Vladimir S. Buslaev and Catherine Sulem, Linear adiabatic dynamics generated by operators with continuous spectrum. I, *Asymptot. Anal.* 58 (2008), no. 1-2, 17 – 45. · [Zbl 1152.35336](#)
- [133] V. S. Buslaev and S. B. Levin, Uniform asymptotic of eigenfunctions for the three-body Schrödinger operator in one-dimensional case, *Proc. of Joint Physics. Math. Workshop on Quantum Few-Body Systems* (March 19-20, 2007, Aarhus, Denmark), AIP Conf. Proc., vol. 998, Amer. Inst. Phys., New York, 2008, pp. 101-112. · [Zbl 1180.81132](#)
- [134] V. S. Buslaev and S. B. Levin, Asymptotic behavior of the eigenfunctions of the many-particle Schrödinger operator. I. One-dimensional particles, *Spectral theory of differential operators*, Amer. Math. Soc. Transl. Ser. 2, vol. 225, Amer. Math. Soc., Providence, RI, 2008, pp. 55 – 71. · [Zbl 1160.81476](#) · [doi:10.1090/trans2/225/04](#)
- [135] V. S. Buslaev and A. A. Pozharskiĭ, Homogenization in the scattering problem, *Funktsional. Anal. i Prilozhen.* 44 (2010), no. 4, 2 – 13 (Russian, with Russian summary); English transl., *Funct. Anal. Appl.* 44 (2010), no. 4, 243 – 252. · [Zbl 1271.35058](#) · [doi:10.1007/s10688-010-0035-9](#)
- [136] V. S. Buslaev and S. B. Levin, Asymptotic behavior of the eigenfunctions of the three-particle Schrödinger operator. II. One-dimensional charged particles, *Algebra i Analiz* 22 (2010), no. 3, 60 – 79 (Russian, with Russian summary); English transl., *St. Petersburg Math. J.* 22 (2011), no. 3, 379 – 392.
- [137] V. S. Buslaev, S. B. Levin, P. Neittaanmäki, and T. Ojala, New approach to numerical computation of the eigenfunctions of the continuous spectrum of three-particle Schrödinger operator: I. One-dimensional particles, short-range pair potentials, *J. Phys. A* 43 (2010), no. 28, 285205, 17. · [Zbl 1193.81111](#) · [doi:10.1088/1751-8113/43/28/285205](#)
- [138] V. S. Buslaev and S. B. Levin, A system of three three-dimensional charged quantum particles: the asymptotic behavior of the eigenfunctions of the continuous spectrum at infinity, *Funktsional. Anal. i Prilozhen.* 46 (2012), no. 2, 83 – 88 (Russian); English transl., *Funct. Anal. Appl.* 46 (2012), no. 2, 147 – 151. · [Zbl 1272.81185](#) · [doi:10.1007/s10688-012-0020-6](#)
- [139] V. S. Buslaev and A. M. Budylin, Quasiclassical asymptotics of the solutions of matrix Riemann-Hilbert problems with quadratic oscillation of non-diagonal elements, *Funktsional. Anal. i Prilozhen.*, 2013. (Russian) (to appear)

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.