

List of publications of Alexander A. Shlapunov

(the most significant publications are marked by asterix)

books

1*. Shlapunov A.A. **Green's integrals and their applications to elliptic systems.** Tesi di perfezionamento (ed. E. Vesentini), Scuola Normale Superiore, 1996, 162 pp.

articles in journals/contributions to books

1*. Shlapunov A.A. **On the Cauchy problem for the Laplace equation.** Siberian Math. Journal, V.33, N. 3 (1992), p. 205–215.

2. Shlapunov A.A., Tarkhanov N.N. **On the Cauchy problem for holomorphic functions of Lebesgue class L^2 in domain.** Siberian Math. Journal, V.33, N. 5 (1992), p. 914–922.

3. Shlapunov A.A., Tarkhanov N.N. **Bases with double orthogonality in the Cauchy problem for systems with injective symbols.** Dokl. Ross. AN., V. 326, N. 1 (1992), p. 45–49; English Transl. in Russian Ac. Sci. Dokl. Math., V. 46, N. 2 (1993), p. 255–230.

4. Aizenberg L.A., Karepov O.V., Shlapunov A.A. **On the property of uniqueness and existence of a limit in Carleman's formulae.** Trudy MIRAN, V. 203, (1994), p. 1–8; English Transl. in Proc. of the Steklov Inst. of Math. N. 3 (1995), p. 1–9.

5. Shlapunov A.A. **On iterations of Green type integrals for matrix factorizations of the Laplace operator.** Rend. Mat. Acc. Linc., S. 9, V. 5, N. 2 (1994), p. 103–116.

6*. Shlapunov A.A., Tarkhanov N.N. **Bases with double orthogonality in the Cauchy problem for systems with injective symbols.** The Proceedings of the London Mathematical Society. Ser. 3, V. 71, (1995), p. 1–52.

7. Shlapunov A.A., Tarkhanov N.N. **A stability set in the Cauchy problem for elliptic systems.** Operator Theory: Advances and Applications (78), Birkhäuser, 1995, p. 353–355.

8*. Shlapunov A.A. **Spectral decomposition of Green's integrals and existence of $W^{s,2}$ -solutions of matrix factorizations of the Laplace operator in a ball.** Rend. del Seminario Mat. dell'Università di Padova, V.96 (1996), p. 237–256.

9*. Nacinovich M., Shlapunov A.A. **On iterations of Green integrals and their applications to elliptic differential complexes.** Mathematische Nachrichten, 180 (1996), p. 243–284.

10. Shlapunov A.A. **On the Cauchy Problem for the Lamé system.** Zeitschrift für Angewandte Mathematik und Mechanik, V. 76, N. 4 (1996), p. 215–221.

11. Shlapunov A.A. **On the Cauchy Problem for some elliptic systems in a shell in \mathbb{R}^n .** Zeitschrift für Angewandte Mathematik und Mechanik, V. 77, N. 11, (1997), p. 849–859.

12. Nacinovich M., Shlapunov A.A., Tarkhanov N.N. **Duality in the spaces of solutions of elliptic systems.** Ann. Scuola Norm. Sup. Pisa, Cl. Sci. (4), Vol. XXVI (1998), p. 207–232.
13. Shlapunov A.A. **Iterations of self-adjoint operators and their applications to elliptic systems.** Math. Nachrichten, 218 (2000), p. 165–174.
14. Shlapunov A.A. **On a solvability condition to a system with injective symbol in terms of iterations of double layer potentials.** Siberian Math. Journal, V. 42, N. 4 (2001), p. 952–963.
15. Shlapunov A.A. **Duality in spaces of solutions to elliptic systems.** Siberian Math. Journal, V. 43, N. 4 (2002), p. 948–958.
16. Shlapunov A.A. **On a duality in spaces of polyharmonic functions.** Izvestiya VUZ. Mathematics, N. 8 (483), 2002, p. 79–81.
- 17*. Shlapunov A.A., Tarkhanov N. **Duality by reproducing kernels.** International Journal of Math. and Math. Sciences, 6 (2003), 78pp.
18. Tarkhanov N., Shlapunov A.A. **Green integrals in complex analysis.** VINITI, Modern Mathematics and its Applications, Complex Analysis, V. 108 (2006), p. 106-157; English translation in Journ. of Math. Sciences, April 2004, V. 120 (6), p. 1868-1900.
19. Schulze B.-W., Shlapunov A.A., Tarkhanov N. **Regularisation of mixed boundary problems.** Mathematical Physics Studies, Vol. 24, Kluwer Academic Publishers, Dordrecht, NL, 2003, 32pp.
- 20*. Schulze B.-W., Shlapunov A.A., Tarkhanov N. **Green integrals on manifolds with cracks.** Annals of Global Analysis and Geometry, Vol. 24, 2003, p. 131–160.
21. Shlapunov A.A. **Regularization of the Cauchy problem for elliptic complexes.** Vestnik KrasGU, Krasnoyarsk State University, 2004, Ser. Phys.-Math. Sci., N. 2, p. 163–170.
22. Shlapunov A.A. **Decomposition in Sobolev spaces with the use of the tangential and normal part of the section.** Vestnik KrasGU, Krasnoyarsk State University, 2005, Ser. Phys.-Math. Sci., N. 1, p. 174–179.
23. Shlapunov A.A. **On some solvability conditions for overdetermined systems of differential equations in Sobolev spaces.** Izvestiya VUZ. Mathematics, N. 4, 2005, p. 70–80.
- 24*. Shlapunov A.A., Tarkhanov N. **Mixed problems with a parameter.** Russian Journ. Math. Phys., V.12, N. 1, 2005, p. 97–124.
25. Shestakov I.V., Shlapunov A.A. **On the solvability of the non-homogeneous Cauchy-Riemann system in a spherical shell.** Vestnik KrasGU, Krasnoyarsk State University, 2006, Ser. Phys.-Math. Sci., N. 1, p. 102–111.
26. Shlapunov A.A., Fedchenko D.P. **On the Cauchy problem in Hölder spaces for the multi-dimensional Cauchy-Riemann operator.** Vestnik KrasGU, Krasnoyarsk State University, 2006, Ser. Phys.-Math. Sci, N. 9., p. 100–110.

27. Shlapunov A.A. **A method for constructing solutions to linear systems of partial differential equations.** Mat. Trudy, 2006, V. 9, N. 2, p.191–204; English translation in Siberian Adv. in Math., 2007, V. 17, N.2.
28. Shlapunov A.A. **On the Cauchy problem for the Cauchy-Riemann operator in Sobolev spaces.** Contemporary Math. 2008, **445**, 333–347.
29. Shestakov V.I., Shlapunov A.A. **On the Cauchy problem for operators with injective symbols in Sobolev spaces.** Journal of Siberian Federal University, Math. and Phys., 2008, N. 1(1), 52-61.
30. Fedchenko D.P., Shlapunov A.A. **On the Cauchy problem for the multi-dimensional Cauchy-Riemann operator in Lebesgue space L^2 in a domain.** Matem. Sbornik, 2008, **199**, N 11, 141-160.
31. Shestakov V.I., Shlapunov A.A. **Negative Sobolev spaces in the Cauchy problem for the Cauchy-Riemann operators.** Journal of Siberian Federal University, Math. and Phys., 2009, N. 2(1), 17-32.
32. Shestakov V.I., Shlapunov A.A. **On the Cauchy problem for operators with injective symbols in Lebesgue space L^2 in a domain.** Siberian Math. J., **50**:3, 2009, 687-702.
33. Shlapunov A.A., Tarkhanov N. **A homotopy operator for Spencer's sequence in the C^∞ -case.** Siberian Adv. in Math., 2009, V. 19, N.2, 75-109.
34. Shlapunov A.A. **Boundary problems for Helmholtz equation and the Cauchy problem for Dirac operators.** Journal of Siberian Federal University, Math. and Phys., 2011, N. 4 (2), 218-229.
- 35*. Shestakov I.V., Shlapunov A.A. **On the Cauchy problem for operators with injective symbols in the spaces of distributions.** J. Inv. Ill-posed Problems, V. 19 (2011), N. 1. 127-150.
36. Puzyrev R.E., Shlapunov A.A. **On an Ill-Posed Problem for the heat equation.** Journal of Siberian Federal University, Math. and Phys., 2012, N. 5 (3), 337-348.
37. Fedchenko D.P., Shlapunov A.A. **On the Cauchy problem for the Dolbeault complex in spaces of distributions.** Complex Variables and Elliptic Equations, V. 58, N. 11 (2013), 1591-1614. <http://dx.doi.org/10.1080/17476933.2012.697459>.
38. Polkovnikov A.N., Shlapunov A.A. **On spectral properties of a non-coercive mixed problem associated with the $\bar{\partial}$ -operator.** Journal of Siberian Federal University, Math. and Phys., 2013, N. 6 (2), 247-261.
- 39*. Shlapunov A.A., Tarkhanov N. **On completeness of root functions of Sturm-Liouville problems with discontinuous boundary operators.** Journal of Differential Equations, 255 (2013), 3305-3337. <http://dx.doi.org/10.1016/j.jde.2013.07.029>.
- 40*. Fedchenko D.P., Shlapunov A.A. **On the Cauchy problem for the elliptic complexes in spaces of distributions.** Complex Variables and Elliptic Equations, V. 59, N. 5, 2014, 651-679. <http://dx.doi.org/10.1080/17476933.2013.776043>.

41. Peicheva A.S., Shlapunov A.A. **On the completeness of root functions of Sturm-Liouville problems for the Lamé system in weighted spaces.** Z. Angew. Math. Mech., V. 95, N. 11 (2015), 1202–1214. DOI 10.1002/zamm.201300303.
42. Polkovnikov A., Shlapunov A. **On non-coercive mixed problems for parameter-dependent elliptic operators.** Math. Comm. 20 (2015), 131–150.
43. Tarkhanov N., Shlapunov A.A. **Sturm-Liouville problems in domains with non-smooth edges. I.** Matem. Trudy. V. 18, N. 1, 2015, 118–189. DOI: 10.17377/mat-trudy.2015.18.106.
44. Tarkhanov N., Shlapunov A.A. **Sturm-Liouville problems in domains with non-smooth edges. II.** Matem. Trudy. V. 18, N. 2, 2015, 133–204. DOI: 10.17377/mat-trudy.2015.18.208.
45. Puzyrev R.E., Shlapunov A.A. **On a mixed problem for the parabolic Lamé type operator.** J. Inv. Ill-posed Problems, V. 23:6 (2015), 555–570. DOI 10.1515/jiip-2014-0043.

Lectures and Teaching Materials

1. Shlapunov A.A. **History of Mathematics**. Krasnoyarsk State University, Krasnoyarsk, 1998, 32pp.
2. Shlapunov A.A. **On some applications of functional analysis**. Krasnoyarsk State University, Krasnoyarsk, 1998, 32pp.
3. Shlapunov A.A. **A brief survey on the history of Mathematics**. Krasnoyarsk State University, Krasnoyarsk, 2005, 32pp.
4. Shlapunov A.A., Rabotin V.V., Sadykov T.M., Ermilov I.V., Mihalkin E.N., Trutnev V.M., Fedchenko D.P., Shestakov I.V., Yakovlev E.I. **Functional analysis. Tutorial complex (program, lectures, exercises, methodical instructions for homework, organizational and methodical instructions, control materials)**. Siberian Federal University, Krasnoyarsk, 2007, Electronic data, 18,5 Mb.
5. Kytmanov A.M., Kytmanov A.A., Myslivets S.G., Shlapunov A.A., Khodos O.V. **Integral representations and current's theory. Tutorial complex (program, lectures, exercises, methodical instructions for homework, organizational and methodical instructions, control materials)**. Siberian Federal University, Krasnoyarsk, 2007, Electronic data, 18,6 Mb.
6. Tsikh A.K., Antipova I.A., Shlapunov A.A., Bushueva N.A. **Introduction to Mathematics. Tutorial complex (Program, lectures, exercises, methodical instructions for homework, organizational and methodical instructions, Control materials)**. Siberian Federal University, Krasnoyarsk, 2008, Electronic data, 6 Mb.
7. Trutnev V.M., Bushueva N.A., Shlapunov A.A., Semusheva A.Yu., Kytmanov A.M. **Complex Analysis: beginning of complex analysis. Tutorial complex (program, lectures, exercises, methodical instructions for homework, organizational and methodical instructions, Control materials)**. Siberian Federal University, Krasnoyarsk, 2011, Electronic data, 3 Mb.
8. Shlapunov A.A., Rabotin V.V., Sadykov T.M. **Functional analysis. Lectures**. Siberian Federal University, Krasnoyarsk, 2011, 268 pp.
9. Shlapunov A.A., Rabotin V.V., Sadykov T.M. **Functional analysis. Operator equations. Tutorial**. Siberian Federal University, Krasnoyarsk, 2011, 282 pp.
10. Shlapunov A.A., Trutnev V.M., Fedchenko D.P. **Functional analysis. Methodical instructions for homework**. Siberian Federal University, Krasnoyarsk, 2012, 27 pp.
11. Shlapunov A.A., Trutnev V.M., Fedchenko D.P. **Functional analysis and integral equations. Methodical instructions for homework**. Siberian Federal University, Krasnoyarsk, 2012, 35 pp.
12. Shlapunov A.A., Znamenskaya O.V. **History and methodology of Mathematics. Methodical instructions for homework**. Siberian Federal University, Krasnoyarsk, 2012, 22 pp.

13. Shlapunov A.A., Znamenskaya O.V. **History and methodology of Mathematics and Informatics. Methodical instructions for homework.** Siberian Federal University, Krasnoyarsk, 2012, 24 pp.

Abstracts of academic conferences

1. Shlapunov A.A. **On solvability conditions in the Sobolev spaces for overdetermined elliptic systems of linear partial differential equations.** Abstracts of the conference "Mathematical models and methods of their investigations", Krasnoyarsk State University, Krasnoyarsk, 1997, p. 194–195.

2. Shlapunov A.A. **Convergence of iterations of Green's integrals and formulae for solutions of elliptic systems with constant coefficients".** Abstracts of the conference "Symmetry in Natural Science", Institute of Computational Modelling, Krasnoyarsk, 1998, p. 152–153.

3. Shlapunov A.A. **On regularization of a mixed problem for the Laplace operator.** Abstracts of the conference "Mathematical models and methods of their investigations", Krasnoyarsk State University, Krasnoyarsk, 1999, p. 213–214.

4. Shlapunov A.A. **On a dual space for solutions of the Dirac operator in the ball.** The Proceedings of the conference "Symmetry in Natural Science", Institute of Computational Modeling, Krasnoyarsk, 2000, p. 262–265.

5. Shlapunov A.A. **Regularization of mixed boundary problems.** Abstracts of the conference "Operator Algebras and Index theory on manifolds with singularities", University of Potsdam, Potsdam, 2000, p. 25.

6. Shlapunov A.A. **Remark on the inhomogeneous Cauchy problem for elliptic systems.** The Proceedings of the conference "Mathematical models and methods of their investigations", Institute of Computational Modeling, Krasnoyarsk, 2001, V. 2, p. 285–290.

7. Shlapunov A.A. **Green integrals on manifolds with cracks.** Abstracts of the conference "Partial Differential Equations", University of Potsdam, Potsdam, 2001, p. 32.

8. Shlapunov A.A. **On the Cauchy problem for the Dolbeault complex.** Abstracts of the conference "Multi-Dimensional Complex Analysis", Krasnoyarsk State University, Krasnoyarsk, 2002, p. 54–55.

9. Shlapunov A.A. **On the Cauchy problem for the system of the linear elasticity theory.** Abstracts of the conference "Mathematical methods in Mechanics of Natural Environments and Ecology", Altay State University, Barnaul, 2002, p. 35–36.

10. Shlapunov A.A. **Regularization of the Ill-posed Cauchy problem for elliptic systems with the use of iterations of Green's integrals.** Abstracts of the conference "Ill-posed and Inverse problems", Institute of Mathematics, Siberian Branch of Academy of Science, Novosibirsk, 2002, p. 152.

11. Shlapunov A.A. **Duality by reproducing kernels.** Abstracts of the conference "Siberian School on Geometry and Analysis", Institute of Mathematics, Siberian Branch of Academy of Science, Novosibirsk, 2002, p. 81.

12. Shlapunov A.A. **Decomposition in Sobolev spaces with the use of normal and tangential parts of section.** Abstracts of the conference "Siberian School on Geometry and Analysis", Institute of Mathematics, Siberian Branch of Academy of Science, Novosibirsk, 2004.
13. Shlapunov A.A. **Mixed problems with a parameter and the Cauchy problem for the Cauchy-Riemann system.** Abstracts of the conference "Complex Analysis and its Applications", Kuban State University, Krasnodar, 2005.
14. Shestakov I.V., Shlapunov A.A. **On the solvability of the Cauchy problem for operators with injective symbols in Sobolev spaces.** Abstracts of the conference "Ill-posed and Inverse problems", Institute of Mathematics, Siberian Branch of Academy of Science, Novosibirsk, 2007.
15. Shlapunov A.A. **Mixed problems with a parameter and the Cauchy problem for Dirac operators.** Abstracts of the conference "Geometry and Analysis on Complex Varieties", Siberian Federal University, Krasnoyarsk, 2007.
17. Shlapunov A.A. **On the structure of Spencer's bundle for operators with injective symbols satisfying uniqueness condition.** Abstracts of the international conference "Contemporary Analysis and Geometry", Institute of Mathematics, Siberian Branch of Academy of Science, Novosibirsk, 2009.
18. Shlapunov A.A. **On completeness of root functions of Sturm-Liouville problems with discontinuous boundary operators.** Abstracts of the international conference "Differential Equation, Function Spaces, Approximation Theory", Institute of Mathematics, Siberian Branch of Academy of Science, Novosibirsk, 2013.