Sergei Avdonin

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University of Alaska, Fairbanks, AK 99775–6660
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ACADEMIC DEGREES

Doctorate Degree in Mathematics, St. Petersburg (Leningrad) State University, 1991

Ph.D. in Mathematics, St. Petersburg (Leningrad) State University, 1977

M.S. in Physics and Mathematical Physics, St. Petersburg (Leningrad) State University, 1972

EMPLOYMENT

2001–present *Professor* Department of Mathematics and Statistics
University of Alaska Fairbanks

2000–2001 *Visiting Professor* Department of Mathematics
University of Tennessee, Knoxville

1991–2001 *Professor* Department of Applied Mathematics
St. Petersburg State University, Russia

1998–2001 *Senior Research Fellow* Department of Mathematics and Statistics
The Flinders University of South Australia

1995–97 *Professor and Head* Department of Mathematics
St. Petersburg University of Economics and Engineering, Russia

1983–91 *Associate Professor*, **1980–83** *Assistant Professor*, **1977–80** *Research Associate*
Department of Applied Mathematics, St. Petersburg State University, Russia

SHORT TERM VISITING APPOINTMENTS

June 2009 University of Linköping, Sweden (host Prof. Vladimir Kozlov)

April 2009 University of Erlangen, Germany (host Prof. Guenter Leugering)

March 2009 Visiting Research Professor, Politecnico di Torino (host – Prof. Luciano Pandolfi)

February 2009 Visiting Professor, Department of Mathematics
University of Nancy-I (host – Prof. Marius Tucsnak)

January 2009 University of Tennessee Knoxville, (host Prof. Suzanne Lenhart)

October–November 2008 University of Missouri Columbia, Visiting Research Professor (Miller Scholar)

July 2008 University of Erlangen, Germany (host Prof. Guenter Leugering)

March–April, 2007 The Isaac Newton Institute, Cambridge
Program "Analysis on Graphs and its Applications"

June 2004 University of Linköping, Sweden (host Prof. Vladimir Kozlov)

June–August, 2002; January 2003 (grant of Australian Research Council) Department of Mathematics and Statistics, The Flinders University of South Australia (host – Prof. Bill Moran)

February–March, 1999 Visiting Professor, Department of Mathematics
University of Nancy-I (host – Prof. Marius Tucsnak)

March–April, 1997; January–February, 1996 (grant NSF)
Department of Mathematics, Virginia Tech. (host – Prof. David Russell)
Department of Mathematics and Statistics, UMBC (host – Prof. Thomas Seidman)

February–March, 1993 (grant of the National Academy of Sciences, USA)
Department of Mathematics and Statistics, UMBC (host – Prof. Thomas Seidman)

January 1993 (grant of the Center for Optimization and Control, Germany)
Institute of Mathematics, University of Bayreuth (host – Prof. Guenter Leugering)

September 1983–August 1984 Senior Research Fellow
Department of Mathematics, Lorand Eötvös University, Budapest

AWARDS

2009 Scholarship of the Italian Academy of Sciences

2008 Miller Scholarship, University of Missouri Columbia

1977 First Prize of St. Petersburg (Leningrad) State University for Young Scientists

GRANTS

2007–2011 NSF grant "Boundary Inverse Problems in Glaciology", Co-PI

2004–2008 NSF grant "The Basal Velocity Field of a Glacier: An Inverse Approach", PI

2003–2004 US National Academy of Sciences grant "Control and inverse problems for distributed parameter systems on graphs", PI

2003–2004 DOD grant "Spintronics", Senior Investigator

1998–2001 Grant of the Australian Research Council "Boundary control in sampling and interpolation of band-limited signals", Senior Investigator

1997–2000 Grant of the Russian Foundation of Basic Research "Controllability problems for hybrid systems", PI

1995-98 NSF International Research Grant, USA, "Bases of exponentials in control of distributed parameter systems", Co-PI

1995-97 Grant of the Russian Foundation of Basic Research "Boundary control in inverse problems of mathematical physics", PI

1994-96 ESPRIT grant of the Commission of the European Communities, Senior Investigator, group leader of the subproject "Control and inverse problems for partial differential equations"

1994-95 Grant of the International Science Foundation "Nonharmonic Fourier series in control theory", PI

1993 Grant of the International Science Foundation "Riesz bases of vector-valued exponentials", PI

1992-93 Grant of the University Research Program, Russia "Inverse problem for multi-channel acoustic system", PI

RESEARCH AREAS

Control theory of distributed parameter systems

Nonharmonic Fourier series

Inverse problems of mathematical physics

Signal processing (sampling and interpolation of band-limited and multi-band signals, spectral estimation)

Partial differential and differential-difference equations

Control and inverse problems on graphs, mathematical modeling of nanodevices

TEACHING EXPERIENCE

UAF, graduate courses: Complex Analysis, Partial Differential Equations, Real Analysis, Functional Analysis, Mathematical Modeling, Control and Inverse Problems for PDEs, Mathematical Physics

UAF, undergraduate courses: Numerical Analysis, Calculus, Complex Analysis, Real Analysis, Advanced Calculus, Ordinary Differential Equations, Applied Analysis and PDEs

UTK, undergraduate course: Ordinary Differential Equations

Flinders University: Precalculus for international students

St. Petersburg University, graduate courses: Inverse Problems of Mathematical Physics, Control Theory, Partial Differential Equations, Operator Theory

St. Petersburg University, undergraduate courses: Linear Algebra, Ordinary Differential Equations, Real Analysis, Complex Analysis

St. Petersburg University of Economics and Engineering, undergraduate courses: Calculus, Probability Theory, Financial Mathematics, History of Mathematics

In 1983 – 1997 supervised five Ph.D. theses and more than ten M.S. research projects at St. Petersburg University. In 2002 — 2009 supervised two Ph.D. theses and four M.S. research projects at UAF. The theses and projects dealt with control theory for distributed parameter systems, partial differential equations, inverse problems of mathematical physics, and nonharmonic Fourier series

INVITED TALKS AT THE INTERNATIONAL CONFERENCES (1998 – present)

"New recursive methods for solving inverse problems on quantum trees," International Workshop "Analysis on Graphs and its Applications," Isaac Newton Institute, Cambridge, UK, July 26–30, 2010

"Inverse problems for networks of elastic strings", International Conference on Dynamical Systems and Differential Equations, Dresden, Germany, May 25–28, 2010

"Boundary control method for partial differential equations", International Workshop on Control and Optimization, Thurnau, Germany, July 21–25, 2008

"Boundary control approach to sampling and interpolation of band-limited and multi-band signals", International Conference on Sampling Theory and Applications, Thessaliniki, Greece, June 1–5, 2007

"On control and inverse problems for the wave and heat equations on graphs", An Isaac Newton Institute Workshop "Quantum Graphs, their Spectra and Applications, Cambridge, UK, April 2–5, 2007

"Boundary controllability and inverse problem for the wave equation on graphs", 14th Mediterranean Conference on Control Automation, Ancona, Italy, June 28–30, 2006

"Inverse problems on graphs", International Conference on Differential Equations, Nagoya, Japan, May 23–28, 2005

"Controllability of the Schrödinger equation on graphs", International Conference on Control Theory and Applications, Irkutsk, Russia, June 29–July 1, 2004

"Control and inverse problems for the Schrödinger equation", International Conference "Progress in Partial Differential Equations and Applications", WSU, Pullman, WA, May 23–25, 2002

"Exponential divided differences in control of distributed systems", International Conference "Control of Distributed Parameter Systems", University of Twente, Netherlands, July 2–6, 2001

"Dynamical inverse problem for the Schrödinger equation, International Workshop on Inverse Problems, St. Petersburg, Russia, June 18–23, 2001

"Simultaneous control of flexible systems", International Conference on Control and Inverse Problems for Distributed Systems, Ekaterinburg, Russia, May 30–June 2, 2000

"Controllability of a circular membrane with rotationally symmetric data", International Conference on Control in Partial Differential Equations, Nancy, France, February 12–17, 1999

"Exponential families in controllability of structurally damped systems", International Conference "Geometry of Hilbert Spaces and Spectral Analysis", Raglan, New Zealand, January 5–12, 1999

"Boundary control methods in signal processing", International Conference on Optimal Control of Partial Differential Equations, Chemnitz, Germany, April 21–26, 1998

INVITED AND COLLOQUIUM TALKS

Imperial College, London; Cambridge University; University of Alabama, Birmingham; Texas A&M University; Texas Southern University; University of Missouri, Columbia; University of California Berkeley; University of California Los Angeles; University of Virginia; Virginia Tech; Georgia Tech; Georgetown University; University of Maryland Baltimore County; University of Tennessee, Knoxville; University of Tennessee, Chattanooga; University of Paris VI; University of Strasbourg; University of Nancy I; University of Madrid; Polytechnical University of Turin; University of Darmstadt; Bolyai Mathematical Institute, Szeged; Lorand Eötvös University, Budapest; Steklov Mathematical Institute; Moscow State University

PROFESSIONAL MEMBERSHIPS / ORGANIZATIONS / JOURNALS

2010–present Associate Editor, *International Journal of Applied Math. and Computer Science*

1991–present Member of the American Mathematical Society

1991–present Reviewer for *Mathematical Reviews*

2000–present Referee for *Journal of Func. Anal.*; *Journal of Math. Anal. Appl.*; *SIAM Journal of Control and Optimization*; *Applied Mathematics and Optimization*; *Int. Journal of Applied Math. and Computer Science*; *Journal of Comput. Optimiz. and Applications*; *Automatica*; *Control, Optimization and Calculus of Variations*; *Asymptotic Analysis*; *Portugalaie Matematica*; *Inverse Problems*

Grant proposals referee for NSF, CRDF

ADDITIONAL SKILLS

Strong educational background in Physics. M.S. in Physics and Mathematical Physics

Ability to work in a group setting. Worked in different groups of mathematicians, scientists, and engineers: on project "ESPRIT" in the frameworks of the European Communities–Russia collaboration (1994–96), on NSF supported project on control of distributed systems (Virginia Tech. and UMBC, 1995–98) on ARC supported project on sampling of spectrally constrained data (Flinders University, 1998–2001), on inverse problems for the Schrödinger equation (University of Tennessee and Oak Ridge National Laboratory, 2000–01), on DOD supported project "Spintronics" and in other groups at St. Petersburg State University, St. Petersburg Technical University, Clark Atlanta University

Management experience. Head of Mathematics Department (20 faculty) of St. Petersburg University Economics and Engineering

LIST OF PUBLICATIONS

Books

1. S.A. Avdonin and S.A. Ivanov, *Families of Exponentials. The Method of Moments in Controllability Problems for Distributed Parameter Systems*, Cambridge University Press, 1995, New York, London, Melbourne.

2. S.A. Avdonin and S.A. Ivanov, *Controllability of Distributed Parameter Systems and Families of Exponentials*, Kiev, UMKVO, 1989 (Russian).

Articles

3. S. Avdonin, G. Leugering and V. Mikhaylov, *On an inverse problem for tree-like networks of elastic strings*, Zeit. Angew. Math. Mech., **90** (2010), no. 2, 136–150.

4. S. Avdonin, F. Gesztesy and K. Makarov, *Spectral estimation and inverse initial boundary value problems*, Inverse Problems and Imaging, **4** (2010), no. 1, 1–9.

5. S. Avdonin and V. Mikhaylov, *The boundary control approach to inverse spectral theory*, Inverse Problems, **26** (2010), no. 4, 1–19.

6. S. Avdonin, B. Belinskiy and L. Pandolfi, *Controllability of a nonhomogeneous string and ring under time dependent tension*, Math. Model. Natur. Phenom., **5** (2010), no. 4, 4–31.

7. S. Avdonin and A. Bulanova, *Boundary control approach to the spectral estimation problem. The case of multiple poles*, Math. Contr. Sign. Syst., (2010), to appear.

8. S. Avdonin, P. Kurasov and M. Nowaczyk, *On the reconstruction of boundary conditions for star graphs*, Inverse Problems and Imaging, **4** (2010), no. 4, 1–19.

9. A.V. Arguchintsev, S.A. Avdonin, V.P. Poplevko, *Optimization of hyperbolic systems with integral constraints for smooth controls*, Izvestia Irkutsk State Univ., Ser. Math., vol. 2 (2010), no. 2, 1-12 (Russian).

10. S.A. Avdonin, B.P. Belinskiy and S.A. Ivanov, *Exact controllability of an elastic ring*, Applied Math. Optim, **60** (2009), no. 1, 71–103.

11. S. Avdonin, A. Bulanova and D. Nicolsky, *Boundary control approach to the spectral estimation problem. The case of simple poles*, Sampling Theory in Signal and Image Processing, **8** (2009), no. 3, 225–248.

12. S. Avdonin and L. Pandolfi, *Boundary control method and coefficient identification in the presence of boundary dissipation*, Applied Math. Letters, **22** (2009), no. 11, 1705–1709.

13. S. Avdonin and S. Ivanov, *Sampling problem for nonseparated sets and divided differences.* Sampling Theory in Signal and Image Processing, **8** (2009), no. 2, 181–199.

14. S. Avdonin, V. Kozlov, D. Maxwell, and M. Truffer, *Iterative methods for solving a nonlinear boundary inverse problem in glaciology*, J. Inverse and Ill-Posed Problems, **17** (2009), no. 3, 239—259.

15. D. Maxwell, M. Truffer, S. Avdonin, and M. Stuefer, *An iterative scheme for determining glacier velocities and stresses*, Journal of Glaciology, **54** (2008), no. 188, 888–898.

16. S. Avdonin and V. Mikhailov, *Controllability of partial differential equations on graphs*, Appl. Math., **35** (2008), 379–393.

17. S. Avdonin, *Control problems on quantum graphs*, in: "Analysis on Graphs and Its Applications", Proceedings of Symposia in Pure Mathematics, AMS, **77** (2008), 507–521.

18. S. Avdonin and P. Kurasov, *Inverse problems for quantum trees,* Inverse Problems and Imaging, **2** (2008), no. 1, 1–21

19. S. Avdonin and S. Ivanov, *Sampling and interpolation problems for vector valued signals in the Paley–Wiener spaces* , IEEE Trans. Signal Proc., **56** (2008), no. 11, 5435–5441.

20. S. Avdonin, A. Bulanova and D. Ovsyannikov, *Optimal cubature formulae related to solutions of initial boundary value problems,* Vestnik St. Petersburg Univ., (2008), no. 2, 108–118.

21. S. Avdonin, V. Mikhaylov and A. Rybkin, *The boundary control approach to the Titchmarsh-Weyl $m-$function,* Comm. Math. Phys., **275** (2007), no. 3, 791–803.

22. S. Avdonin, A. Bulanova and W. Moran, *Construction of sampling and interpolating sequences for multi-band signals. The two-band case,* Int. J. Appl. Math. Comput. Sci., **17** (2007), no. 2, 101–113.

23. S.A. Avdonin and B.P. Belinskyi, *On controllability of a rotating string*, Journal of Mathematical Analysis and Applications, **321** (2006), no. 1, 198–212.

24. S.A. Avdonin, L.A. Dmitrieva, Yu.A. Kuperin and V.V. Sartan, *Solvable model of spin-dependent transport through the finite array of quantum dots*, J. Phys. A, **38** (2005), 4825–4833.

25. S.A. Avdonin and B.P. Belinskyi, *On the basis properties of the functions arising in the boundary control problem of a string with a variable tension*, Discrete and Continuous Dynamical Systems: A Supplement Volume, (2005), 40–49.

26. S.A. Avdonin, L.A. Dmitrieva, Yu.A. Kuperin and V.V. Sartan, *Spin-dependent transport through the finite array of quantum dots: Spin–Gun*, "In: Quantum Dots: Research Developments", Nova Science Publishers, (2005) Editor: Peter A. Ling, pp. 89–121.

27. S. Avdonin, S. Lenhart and V. Protopopescu, *Determining the potential in the Schrödinger equation from the Dirichlet to Neumann map by the Boundary Control method*, J. Inverse and Ill-Posed Problems, **13** (2005), no. 5, 317–330 .

28. S.A. Avdonin and M.I. Belishev, *Dynamical inverse problem for the multidimensional Schrödinger equation*, Proc. St. Petersburg Math. Soc., **10** (2004), 3–18, Russian, Engl. Transl. in Amer. Math. Soc. Transl. Ser. 2, **214**, 1–14, Amer. Math. Soc., Providence, RI, 2005.

29. S.A. Avdonin and B.P. Belinskyi, *Exact control of a string under an axial stretchnig tension*, Discrete and Continuous Dynamical Systems, Expanded Volume (2003), 57–67.

30. S. Avdonin, S. Lenhart, and V. Protopopescu, *Solving the dynamical inverse problem for the Schrödinger equation by the Boundary Control method*, Inverse Problems, **18** (2002), 41–57.

31. S.A. Avdonin and T.I. Seidman, *Pointwise and internal controllability for the wave equation*, Applied Mathematics and Optimization, **46** (2002), 107–124.

32. S.A. Avdonin and W. Moran, *Simultaneous control problems for systems of elastic strings and beams*, Systems and Control Letters, **44** (2001), no. 2, 147–155.

33. S. Avdonin and W. Moran, *Ingham type inequalities and Riesz bases of divided differences*, Int. J. Appl. Math. Comput. Sci., **11** (2001), no. 4, 101–118.

34. S. Avdonin and M. Tucsnak, *On the simultaneously reachable set of two strings*, ESAIM: Control, Optimization and Calculus of Variations, **6** (2001), 259–273.

35. S.A. Avdonin and S.A. Ivanov, *Exponential Riesz bases of subspaces and divided differences*, St. Petersburg Mathematical Journal, **13** (2001), no. 3, 339–351.

36. S.A. Avdonin, S.A. Ivanov, and D.L. Russell, *Exponential bases in Sobolev spaces in control and observation problems for the wave equation*, Proc. Royal Soc. Edinburgh, **130A** (2000), no. 5, 947-970.

37. T.I. Seidman, S.A. Avdonin, and S.A. Ivanov, *'Window' problem for complex exponentials*, J. Fourier Analysis Appl., **6** (2000), no. 3, 233–254.

38. S.A. Avdonin and S.A. Ivanov, *Levin–Golovin theorem for the Sobolev spaces*, Math. Notes, **68** (2000), no. 1-2, 145–153.

39. S.A. Avdonin, N.G. Medhin, and T.L. Sheronova, *Identification of a piecewise constant coefficient in the beam equation*, J. Comp. Appl. Math., **114** (2000), 11–21.

40. S.A. Avdonin, M.I. Belishev, and Yu.S. Rozhkov, *A dynamic inverse problem for the nonselfadjoint Sturm–Liouville operator*, J. Math. Sci., **102** (2000), no. 4, 4139–4148.

41. S.A. Avdonin and S.A. Ivanov, *Controllability types for a circular membrane with rotationally symmetric data*, Control and Cybernetics, **28** (1999), no. 3, 383–396.

42. S. Avdonin and W. Moran, *Sampling and interpolation of functions with multi-band spectra and controllability problems*, in "Optimal Control of Partial Differential Equations", Hoffmann, K.-H., Leugering, G., Tröltzsch F. (Eds.), Birkhäuser, **133** (1999), 43–51.

43. S.A. Avdonin, S.A. Ivanov, and D.L. Russell, *Exponential bases in Sobolev spaces in control and observation problems*, in "Optimal Control of Partial Differential Equations", Hoffmann, K.-H., Leugering, G., Tröltzsch F. (Eds.), Birkhäuser, **133** (1999), 33–42.

44. S.A. Avdonin, M.I. Belishev, and Yu.S. Rozhkov, *The BC–method in the inverse problem for the heat equation*, J. Inverse and Ill-Posed Problems, **5** (1997), 309–322.

45. S.A. Avdonin, M.I. Belishev, and S.A. Ivanov, *Controllability in filled domain for the wave equation with singular boundary control*, J. Math. Sci., **83** (1997), no. 2, 165–174.

46. S.A. Avdonin and M.I. Belishev, *Boundary control and dynamical inverse problem for nonselfadjoint Sturm–Liouville operator*, Control and Cybernetics, **25** (1996), 429–440.

47. S.A. Avdonin and T.I. Seidman, *Identification of $q(x)$ in $u_t = \Delta u - qu$ from boundary observations*, SIAM J. Control Optimization, **33** (1995), 1247–1255.

48. S.A. Avdonin and S.A. Ivanov, *Boundary controllability problems for the wave equation in a parallelepiped.* Appl. Math. Letters, **8** (1995), 97–102.

49. S.A. Avdonin and O.P. Germanovich, *The basis property of a family of Floquet solutions of a linear periodic equation of neutral type in a Hilbert space*, Siberian Math. J., **36** (1995), 853–858 .

50. S.A. Avdonin, S.A. Ivanov, and I. Joó, *Exponential series in the problem of initial and pointwise control of a rectangular vibrating membrane*, Studia Sci. Math. Hung., **30** (1995), 243–259.

51. S.A. Avdonin and O.Ya. Gorshkova, *Controllability and quasicontrollability of parabolic systems with delay*, Differential Equations, **28** (1992), 374–383.

52. S.A. Avdonin, M.I. Belishev, and S. A. Ivanov, *Matrix inverse problem for the equation* $u_{tt} - u_{xx} + Q(x)u = 0$, Math. USSR Sbornik, **7** (1992), 287–310.

53. S.A. Avdonin, *The existence of basis subfamilies of a Riesz basis from exponentials*, Vestnik Leningrad Univ. Math., **24** (1991), no. 3, 59–60.

54. S.A. Avdonin, S.A. Ivanov, and A.Z. Ishmukhametov, *Quadratic cost optimal control of a string vibrations*, Soviet Math. Dokl., **43** (1991), 154–158.

55. S.A. Avdonin, M.I. Belishev, and S.A. Ivanov, *Dirichlet boundary control in filled domain for the multidimensional wave equation*, Soviet J. Automat. Inform. Sci., **24** (1991), 76–80.

56. S.A. Avdonin, S.A. Ivanov, and I. Joó, *Initial and pointwise control of the vibrations of a rectangular membrane*, Soviet J. Automat. Inform. Sci., **6** (1990), 68–71.

57. S.A. Avdonin, S.A. Ivanov, and I. Joó, *Families of exponentials and controllability of a rectangular membrane*, Studia Sci. Math. Hung., **25** (1990), 291–306.

58. S.A. Avdonin and S.A. Ivanov, *Generating matrix-function in problem of controlling vibrations of connected strings*, Soviet Math.Dokl., **40** (1990), 179–183.

59. S.A. Avdonin and V.V. Chudinov, *Design of a control of the oscillations of a nonhomogeneous string*, Partial Differential Equations, 23–30, Leningrad Ped. Inst., Leningrad, 1990 (Russian), MR 1109075.

60. S.A. Avdonin, M. Horvath, and I. Joó, *Riesz bases from elements of the form* $x^k e^{i\lambda_n x}$, Vestnik Leningrad Univ. Math., **22**, no. 4 (1989), 1–6.

61. S.A. Avdonin, S.A. Ivanov, and I. Joó, *On theorem of N. K. Bari*, Studia Sci. Math. Hung., **24** (1989), 259–261.

62. S.A. Avdonin, S.A. Ivanov, and I. Joó, *On Riesz bases from vector exponentials. I*, Annales Univ. Sci. Budapest, **32** (1989), 101–114.

63. S.A. Avdonin, S.A. Ivanov, and I. Joó, *On Riesz bases from vector exponentials. II*, Annales Univ. Sci. Budapest, **32** (1989), 115–126.

64. S.A. Avdonin, *Exact and approximate controllability of evolution systems*, Problems Mech. Control Proc. **12** (1989), 5–14, Leningrad Univ., Leningrad (Russian), MR 1064527 (92a:93017).

65. S.A. Avdonin and V.V. Chudinov, *Design of controls of a system of hyperbolic type*, Partial Differential Equations, 115–121, Leningrad Ped. Inst., Leningrad, 1989 (Russian), MR 1032319.

66. S.A. Avdonin and V.V. Chudinov, *Observability and exact controllability of the wave equation with Neumann boundary control*, Leningrad Ped. Inst., 1989, 9 p. VINITI 08.01.90, no. 125 (Russian).

67. S.A. Avdonin and T.K. Karaeva, *On controllability of hyperbolic systems with time delays*, Leningrad State University, 1989, 7 p., VINITI 20.09.89, no. 5952 (Russian).

68. S.A. Avdonin and I. Joó, *Riesz bases of exponentials and sine type functions*, Acta Math. Hung, **51** (1988), 3–14.

69. S.A. Avdonin and D.A. Ovsyannikov, *An approach to the construction of optimal cubature formulas*, Partial Differential Equations, 153–158, Leningrad Ped. Inst., Leningrad, 1988 (Russian), MR 0998987 (90h:65028).

70. S.A. Avdonin and O.Ya. Gorshkova, *On the controllability of parabolic systems with delay in the highest derivative*, Partial Differential Equations, 113–118, Leningrad Gos. Inst., Leningrad, 1987 (Russian), MR 0959163 (89i:93007).

71. S.A. Avdonin and O.Ya. Gorshkova, *Controllability of multidimensional parabolic systems with delay*, Mathematical Physics, 95–99, Leningrad Gos. Ped. Inst., Leningrad, 1987 (Russian), MR 0939392 (89e:93014).

72. S.A. Avdonin and O.Ya. Gorshkova, *Controllability of parabolic systems with time delays*, Leningrad Ped. Inst., 1987. 21 p. VINITI 22.01.87, no. 506 (Russian).

73. S.A. Avdonin and O.Ya. Gorshkova, *On controllability of parabolic systems with time delay in control*, Leningrad Ped. Inst., 1987. 12 p. VINITI 20.05.87, no. 3538 (Russian).

74. S.A. Avdonin and O.Ya. Gorshkova, *Controllability of multidimensional parabolic systems with time delay*, Leningrad Ped. Inst., 1987. 26 p. VINITI 14.08.87, no. 5989 (Russian).

75. S.A. Avdonin and K.B. Nurtazina, *Optimality conditions in control problems of hyperbolic systems with time delays*, Leningrad Ped. Inst., 1987. 12 p. VINITI 25.05.87, no. 3539 (Russian).

76. S.A. Avdonin and K.B. Nurtazina, *Design of controls of a system of hyperbolic type with time delays in boundary conditions*, Leningrad Ped. Inst., 1987. 15 p. VINITI 28.09.87, no. 6967 (Russian).

77. S.A. Avdonin and O.Ya. Gorshkova, *On the controllability and quasicontrollability of systems of parabolic type with delay*, Partial Differential Equations, 53–55, Leningrad Gos. Inst., Leningrad, 1986 (Russian), MR 0895850 (88e:93009).

78. S.A. Avdonin and K.B. Nurtazina, *Solving the stabilization problem for a hyperbolic type system*, Differential Equations and Applied Problems, 123–125, Tula Univ., Tula, 1986 (Russian).

79. S.A. Avdonin and S.A. Ivanov, *Serial bases of exponentials and the problem of complete damping of a system of strings*, Soviet Phys. Dokl., **29** (1984), 182–184.

80. S.A. Avdonin and K.B. Nurtazina, *On the boundary control for a hyperbolic type equation*, Mathematical Physics, 68–74, Leningrad Ped. Inst., Leningrad, 1984 (Russian).

81. S.A. Avdonin and S.A. Ivanov, *Riesz bases of exponentials in a space of vector-valued functions and controllability of a nonhomogeneous string*, Operator Theory and Function Theory, 62–68, Leningrad Univ., 1983 (Russian), MR 0768778 (86b:46058).

82. S.A. Avdonin and T.K. Karaeva, *Control of the oscillations of a nonhomogeneous string*, Optimal Control of Mech. Systems, 87–92, Leningrad Univ., 1983 (Russian).

83. S.A. Avdonin, *Controllability of connected string systems*, Math. Methods in Control Mech. Systems, 3–9, Leningrad Univ., 1982 (Russian).

84. S.A. Avdonin, N.B. Avdonina, and S.V. Petrov, *Diffusion model of drying in drum-type apparatus*, Journal of Appl. Chem., **55**, no. 5, (1982), 1073–77 (Russian), ISSN: 0044-4618.

85. S.A. Avdonin, *On controllability of a singular string*, Problems of Control Mechanics, Perm', 1982, 3–8 (Russian).

86. S.A. Avdonin, *On controllability of distributed parameter systems*, Vestnik Leningrad Univ., **19**, no. 4 (1980), 5–8 (Russian), MR 0609136 (82c:93003).

87. S.A. Avdonin, *On Riesz bases of exponentials in* L^2, Vestnik Leningrad Univ. Math., **7** (1979), 203–211.

88. S.A. Avdonin, *Solution of the exponential moment problems in space* $L^2(0,\infty)$, Zap. Nauch. Semin. Leningr. Otd. Mat. Inst. Steklov (LOMI), **74** (1977), 193–194 (Russian), MR 0513176 (80a:30037).

89. S.A. Avdonin, *On the question of Riesz bases consisting of exponential functions in* L^2, J. Soviet Math., **8** (1977), 130–131.

90. S.A. Avdonin and I.O. Protod'yakonov, *Study of the control of a desorber with a fluidized bed of a sorbent*, Journal of Appl. Chem., **49**(1), (1976), 241, ISSN: 0044-4618, 12 p. VINITI 11.08.75, no. 2433 (Russian).

91. S.A. Avdonin, *Concerning one method of studying the control of technological systems described by differential equations of hyperbolic type*, Journal of Appl. Chem., **49**(1), (1976), 241, ISSN: 0044-4618, 14 p. VINITI 11.08.75, no. 2430 (Russian).

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