Sergei Avdonin

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University of Alaska Fairbanks, AK 99775-6660, USA
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ACADEMIC DEGREES

Doctor of Science 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

2016–2017 *Visiting Professor* Department of Mathematics
Kuwait University

2012–2013 *Professor, Chair of Excellence in Applied Mathematics*
Department of Mathematics, University of Tennessee at Chattanooga

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

1991–2001 *Leading Research Scientist* Institute of Computational Mathematics and Control
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

1972–1982 *Junior Research Scientist*, **1982–1991** *Senior Research Scientist*
Institute of Computational Mathematics and Control, St. Petersburg State University, Russia

SHORT TERM VISITING APPOINTMENTS

June 2018 Visiting Research Professor, Euler Mathematical Institute, St. Petersburg, Russia

July–August 2016 Visiting Research Professor, UNAM, Mexico City

June 2016 Visiting Research Professor, Polytechnic University of Turin, Italy

October–November 2015 Visiting Research Professor,
Institute for Mathematics and its Applications, University of Minnesota

March 2014 Visiting Research Professor, Kuwait University, Kuwait

January–March 2013 Visiting Research Professor, Mittag–Leffler Mathematical Institute
Stockholm, Sweden

June 2011 Visiting Professor, University of Valenciennes, France

January 2011 Visiting Professor, University of Morelia, Mexico

June 2010 Visiting Research Professor, Polytechnic University of Turin, Italy

June 2009 Visiting Research Professor, University of Linköping, Sweden

April 2009 Visiting Research Professor, University of Erlangen–Nuremberg, Germany

March 2009 Visiting Research Professor, Polytechnic University of Turin, Italy

February 2009 Visiting Professor, University of Nancy, France

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

July 2008 Visiting Research Professor, University of Erlangen–Nuremberg, Germany

March–April 2007 Visiting Research Professor, Isaac Newton Mathematical Institute
Cambridge, UK

June 2004 Visiting Research Professor, University of Linköping, Sweden

June–August, 2002; January 2003 Visiting Research Professor
The Flinders University of South Australia

February–March, 1999 Visiting Professor, University of Nancy, France

March–April, 1997; January–February, 1996 Visiting Research Professor (grant NSF)
Virginia Tech. and University of Maryland Baltimore County

February–March, 1993 Visiting Research Professor (grant of the National Academy of Sciences)
University of Maryland Baltimore County

January 1993 (grant of the Center for Optimization and Control, Germany)
University of Bayreuth, Germany

September 1983–August 1984 Senior Research Fellow
Lorand Eötvös University, Budapest, Hungary

AWARDS

2012 Usibelli Research Award, University of Alaska Fairbanks

2011 Visiting Distinguished Professor, Mexican Academy of Sciences

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

2019–2022 NSF grant "New approach to inverse problems for differential equation networks"

2018–2020 Grant of the Ministry of Education and Science of Republic of Kazakhstan "New Types of Control and Identification Problems for Differential Equations on Graphs" (with Karlygash Nurtazina)

2014–2018 NSF grant "Control and Inverse Problems for Differential Equations on Graphs"

2015–2017 Grant of the Ministry of Education and Science of Republic of Kazakhstan "Control and Identification Problems for Differential Equations with Memory" (with Gulden Murzabekova)

2013–2015 Australian Research Council grant "Interrogation and Estimation of Differential Equation Networks" (with W. Moran and M. Morelande)

2007–2011 NSF grant "Boundary Inverse Problems in Glaciology" (with M. Truffer and D. Maxwell)

2004–2008 NSF grant "The Basal Velocity Field of a Glacier: An Inverse Approach" (with M. Truffer)

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

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" (with W. Moran)

1997–1999 Grant of the Russian Foundation of Basic Research "Controllability and identification problems for elastic systems with structural damping"

1995-98 NSF International Research Grant, USA, "Bases of exponentials in control of distributed parameter systems" (with D. Russell and T. Seidman)

1995-97 Grant of the Russian Foundation of Basic Research "Families of exponentials and their applications to control problems for partial differential equations"

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"

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

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

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 for differential equations on graphs

TEACHING EXPERIENCE

UTC, undergraduate course: Linear Algebra

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, Linear Algebra, Applied Analysis and PDEs

UTK, undergraduate course: Ordinary Differential Equations

Kuwait University, undergraduate course: Calculus

Kuwait University, graduate course: Real Analysis

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

St. Petersburg University, undergraduate course: Ordinary Differential Equations

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

In **1983 – 1997** supervised four Ph.D. theses and more than ten M.S. research projects at St.

Petersburg University. Since **2002** have supervised two Ph.D. theses and six 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. Currently I supervise four Ph.D. students.

PLENARY AND INVITED TALKS AT INTERNATIONAL CONFERENCES (2007 – 2019)

3rd IFAC Workshop on Control of Systems Governed by Partial Differential Equations and XI Workshop on Control of Distributed Parameter Systems, Oaxaca, Mexico, May 20-24, 2019.
International Conference "Days on Diffraction 2019", St. Petersburg, Russia, June 3–7, 2019.
International Conference on Differential Equations and Dynamical Systems, Suzdal, Russia, July 6–11, 2018.
9-th International Conference "Inverse Problems: Modeling and Simulation," Malta, May 21–25, 2018.
International Conference "Paths in Mathematical Control Theory," Turin, Italy, February 25–27, 2018.
ISAAC Congress 2017, Linnaeus, Sweden, August 2017.
10-th Workshop on the Control of Distributed Parameter Systems, Bordeaux, France, July 3–7, 2017.
International Conference "Waves in Science and Engineering," Queretaro, Mexico, August 22–26, 2016.
8-th International Conference: Inverse Problems; Modeling & Simulation, Fethiye, Turkey, May 23–28, 2016.
International Conference "PDE, Complex Analysis and Related Topics," Miami, January 4–7, 2016.
9-th Workshop on Control of Distributed Parameter Systems, Beijing, China, June 29–July 3, 2015.
10-th AIMS International Conference on Dynamical Systems and Differential Equations, Madrid, Spain, July 7–11, 2014.
V Congress of the Turkic World Mathematicians, Bulan-Sogottu, Kyrgyzstan, June 5–7, 2014.
Mathematical Congress of the Americas, Guanajuato, Mexico, August 5–9, 2013.
Joint Math. Meetings, San Diego, January 9-12, 2013.
International Workshop on Analysis, Differential Equations and Control Theory, Morelia, Mexico, January 18–20, 2012.
Joint Math. Meetings, Boston, January 4–7, 2012.
International Conference on Inverse Problems, Edinburgh, October 18–22, 2011.
International Congress on Industrial and Applied Math., Vancouver, July 18-22, 2011.
"Control and inverse problems for partial differential equations", Mini-course, University of Michoacana, Morelia, Mexico, January 10–21, 2011.
International Workshop "Analysis on Graphs and its Applications," Isaac Newton Mathematical Institute, Cambridge, UK, July 26–30, 2010.
International Conference on Mathematical Analysis, Euler Mathematical Institute, St. Petersburg, Russia, July 4–9, 2010.
V.I. Zubov Memorial Conference, St. Petersburg, Russia, June 30–July 1, 2010.
International Conference on Dynamical Systems and Differential Equations, Dresden, Germany, May 25–28, 2010.
International Conference on Systems Theory, Fes, Morocco, May 25–29, 2009.
International Workshop on Control and Optimization, Thurnau, Germany, July 21–25, 2008.

International Conference on Sampling Theory and Applications, Thessaloniki, Greece, June 1–5, 2007.

An Isaac Newton Institute Workshop "Quantum Graphs, their Spectra and Applications," Cambridge, UK, April 2–5, 2007.

COLLOQUIUM AND INVITED TALKS (2007 – 2018)

Colorado State University (November 2018); CINVESTAV, Mexico (November 2018); University of Aachen (November 2018); University of North Carolina Charlotte (September 2018); Georgia Tech (August 2018); Steklov Mathematical Institute, St. Petersburg (June 2018); Gumilyov Euroasian University, Astana (July 2017); NYUAD, Abu Dhabi, UAE (November 2016); UNAM, Mexico City (July 2016); Turin Polytechnical University (June 2016); Kuwait University (February 2016, March 2014); Institute for Mathematics and its Applications, University of Minnesota (November 2015); Iowa State University (November 2015); University of Central Florida (October 2015); University of Nevada Reno (April 2014); Mittag–Leffler Mathematical Institute (March 2013); University of Texas at Arlington (January 2013); Florida International University (November 2012); University of Maryland Baltimore County (October 2012); University of Hawaii Manoa (November 2011); University of Valenciennes, France (June 2011); Institute of Mathematics, Morelia Branch, UNAM, Mexico (January 2011); Center of Mathematical Investigations, Guanajuato, Mexico (January 2011); Technical University of Berlin (June 2010); University of Alaska Fairbanks (October 2009, March 2012, November 2013); University of Linköping, Sweden (June 2009, February 2013); Institute of Computational Mathematics, Moscow, Russia (May 2009); Polytechnic University of Turin, Italy (March 2009); University of Nancy, France (February 2009); University of Tennessee Knoxville (January 2009); University of Missouri Columbia (October 2008); University of Tennessee Chattanooga (April 2008; January 2013); California Institute of Technology (February 2008) University of West Georgia (April 2007, September 2014); Cambridge University, UK (March 2007); Imperial College, London, UK (March 2007); University of Alabama Birmingham (January 2007).

PROFESSIONAL MEMBERSHIPS / ORGANIZATIONS / JOURNALS

2018–present Member of the Editorial Board, *Journal of Optimization, Differential Equations and Their Applications*

2011–present Member of the Editorial Board, *Vestnik St. Petersburg University: Applied Mathematics*

2013–present Member of the Editorial Board, *Vestnik Samara University: Mathematics*

2010–2016 Member of the Editorial Board, *International Journal of Applied Math. and Computer Science*

Organizer (with V. Maksimov), Minisymposium "Inversion, Estimation and Control of Uncertain Distributed Dynamical Systems," 28th IFIP TC7 Conference on System Modeling and Optimization, Essen, Germany, July 23–27, 2018

Organizer (with P. Kurasov), Minisymposium "Inverse Problems for Differential Equations on Graphs," 9th International Conference "Inverse Problems: Modeling and Simulation," Malta, May 21–25, 2018

Organizer (with J. Bell), Minisymposium "Differential Equations on Graphs and their Applications", International Congress on Industrial and Applied Mathematics, Vancouver, July 18–22, 2011

Organizer (with J. Bell), Special Session "Theory and Applications of Differential Equations on Graphs", Joint Mathematics Meeting, San Diego, January 9-12, 2013

Organizer (with B. Belinskiy, J. Mathews, M. Wang), International Conference "New Trends in Differential and Difference Equations," Chattanooga, TN, March 15-16, 2013

Organizer (with J. Bell), Special Session "Theory and Applications of Differential Equations on Graphs", AMS Sectional Meeting, Baltimore, MD, March 29-30, 2014

Organizer (with S. Nicaise), Special Session "Differential and Difference Equations on Graphs and their Applications", 10 AIMS International Conference on Dynamical Systems and Differential Equations, Madrid, Spain, July 7-11, 2014

Member of the Plenary Committee, International Conference: Waves in Science and Engineering, Queretaro, Mexico, August 22–26, 2016

1991–present Reviewer for *Mathematical Reviews*

2000–present Referee for *Journal of Functional Analysis*; *Journal of Math. Analysis and Applications*; *SIAM Journal of Control and Optimization*; *SIAM Journal of Applied Mathematics*; *Applied Mathematics and Optimization*; *International Journal of Applied Math. and Computer Science*; *Journal of Optimization and Applications*; *Automatica*; *Control, Optimization and Calculus of Variations*; *Asymptotic Analysis*; *Portugalaie Matematica*; *Inverse Problems*; *Applicable Analysis*; *Nonlinear Analysis*

Grant proposals referee for NSF

ADDITIONAL SKILLS

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

Ability to work in a group setting and as a group leader. Worked in different groups (in most of them as a group leader) 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" (UAF, 2002–05), NSF supported project on inverse problems in glaciology (UAF, 2004–11), on ARC supported project on differential equation networks (University of Melbourne, 2013–2015), and in other groups at St. Petersburg State University, St. Petersburg Technical University, Clark Atlanta University

Management experience. Head of Mathematics Department of St. Petersburg University Economics and Engineering (1995–97)

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, J. Park and L. de Teresa, *The Kalman condition for the boundary controllability of coupled 1-d wave equations*, Evolution Equations and Control Theory, (2019), doi: 10.3934/eect.2020005.

4. S. Avdonin and J. Edward, *Spectral clusters, asymmetric spaces, and boundary control for Schrödinger equation with strong singularities*, Operator Theory Advances and Applications, (2019), accepted.

5. S. Avdonin and J. Edward, *Controllability for string with attached masses and Riesz bases for asymmetric spaces*, Mathematical Control & Related Fields, (2019), **9**, no. 3, 453–494.

6. S. Avdonin, S. Ivanov and Jun Min Wang, *Inverse problems for the heat equation with memory* Journal of Inverse Problems and Imaging, (2019), **13**, no. 1, 31–38.

7. S. Avdonin, J. Bell, V. Mikhaylov, and K. Nurtazina, *Source and coefficient identification problems for the wave equation on graphs*, Mathematical Methods in Applied Sciences, (2019), **42**, pp. 50295039, hpps://doi.org/10.1002/mma.5229.

8. S. Avdonin and J. Edward, *Exact controllability for string with attached masses,* SIAM Journal on Control and Optimization, (2018), **56**, no. 2, 945–980.

9. S. Avdonin and L. Pandolfi, *A linear algorithm of identification of a weakly singular relaxation kernel using two boundary measurements,* J. Inverse and Ill-Posed Problems, (2018), **26**, no. 2, 299–310, doi.org/10.1515/ jiip-2016-0064.

10. S.A. Avdonin, G.Y. Murzabekova and K.B. Nurtazina, *Source identification for the differential equation with memory,* In book: New Trends in Analysis and Interdisciplinary Applications, (2017), 111–120, Birkhuser/Springer, Cham, DOI: 10.1007/978-3-319-48812-7-15.

11. S. Avdonin, J. Bell and K. Nurtazina, *Determining distributed parameters in a neuronal cable model on a tree graph,* Mathematical Methods in Applied Sciences, (2017), **40**, no. 11, 3973–3981.

12. S.A. Avdonin, V.S. Mikhaylov and K.B. Nurtazina, *On inverse dynamical and spectral problems for the wave and Schrödinger equations on finite trees. The leaf peeling method,* J. Math. Sciences, (2017), **224**, no. 1, 1–15.

13. F. Al-Musallam, S.A. Avdonin, N.B. Avdonina and J.K. Edward, *Control and inverse problems for networks of vibrating strings with attached masses,* Nanosystems: Physics, Chemistry, Mathematics, (2016), **7**, no. 5, 835–841.

14. S. Avdonin and S. Nicaise, *Source identification problems for the wave equation on graphs,* Inverse Problems, (2015), **31**, 095007, 29pp.

15. S. Avdonin and J. Bell, *Determining a distributed conductance parameter for a neuronal cable model defined on a tree graph,* Journal of Inverse Problems and Imaging, (2015), **9**, no. 3, 645-659.

16. S. Avdonin, A. Choque Rivero, G. Leugering and V. Mikhaylov, *On the inverse problem of the two velocity tree-like graph,* Zeit. Angew. Math. Mech., (2015), **95,** no. 12, 1490–1500, DOI: 10.1002 zamm.201400126.

17. S.A. Avdonin, A.S. Mikhaylov and V.S. Mikhaylov, *On some applications of the boundary control method to spectral estimation and inverse problems*, Nanosystems: Physics, Chemistry, Mathematics, (2015), **6**, no. 1, 63–78.

18. S.A. Avdonin, G.E. Murzabekova and K.B. Nurtazina, *Control and identification for the heat and wave equations with memory on graphs,* Vestnik ENU, (2015), **105**, no. 2, 5–11.

19. S. Avdonin and S. Nicaise, *Source identification for the wave equation on graphs,* C. R. Math. Acad. Sci. Paris, (2014), **352**, no. 11, 907–912.

20. S. Avdonin and B. Belinskiy, *On controllability of a linear elastic beam with memory under axial load,* Evolution Equations and Control Theory, (2014), **3**, no. 2, 231–245.

21. S. Avdonin, V. Mikhaylov and K. Ramadi, *Reconstructing the potential for the one-dimensional Schrödinger equation from boundary measurements*, IMA Journal of Mathematical Control and Information, (2014), **31**, no. 1, 137–150.

22. S.A. Avdonin and V.S. Mikhaylov, *Spectral estimation problem in infinite dimensional spaces,* Zap. Nauchn. Sem. S.-Peterburg. Otdel. Mat. Inst. Steklov (POMI), (2014), **422**, 5–18.

23. S. Avdonin, A. Choque and L. de Teresa, *Exact boundary controllability of coupled hyperbolic equations,* Int. J. Appl. Math. Comp. Sci., (2013), **23**, no. 4, 701–709.

24. S. Avdonin and B. Belinskiy, *On controllability of a non-homogeneous string with memory,* J. Math. Anal. Appl., (2013), **398**, no. 1, 254–269.

25. S. Avdonin and L. Pandolfi, *Simultaneous temperature and flux controllability for heat equations with memory*, Quarterly of Applied Mathematics, (2013), **71**, no. 2, 339–368, DOI: S 0033-569X-01287-7.

26. S. Avdonin and J. Bell, *Determining a distributed parameter in a neural cable model via a boundary control method,* J. Mathematical Biology, (2013), **67**, no. 1, 123–141, DOI: 10.1007/s00285-012-0537-6.

27. S. Avdonin and V. Kozlov, *Stability estimate for an inverse problem in glaciology,* Analysis and Mathematical Physics, **2** (2012), no. 4, 367–387.

28. S. Avdonin and V. Mikhaylov, *Inverse source problem for the 1-d Schrödinger equation*, Zap. Nauchn. Semin. PDMI, **393** (2011), Math. Prob. Wave Propag. Theory, no. 41, 5–11.

29. S. Avdonin and L. Pandolfi, *Temperature and heat flux dependence/independence for heat equations with memory*, "Time Delay Systems - Methods, Applications and New Trends", 87–101, Lecture Notes in Control and Information Sciences, Springer, 2011.

30. S. Avdonin and A. Bulanova, *Boundary control approach to the spectral estimation problem. The case of multiple poles*, Mathematics of Control Signal and Systems, **22** (2011), no. 3, 245–265.

31. S. Avdonin, B. Belinskiy and M. Matthews, *Dynamical inverse problems on a metric tree*, Inverse Problems, **27** (2011), 075011, 21pp.

32. S. Avdonin, B. Belinskiy and M. Matthews, *Inverse problem on the semi-axis: local approach*, Tamkang Journal of Mathematics, **42** (2011), no. 3 (special issue on inverse spectral problems), 1–19.

33. S. Avdonin, P. Kurasov and M. Nowaczyk, *On the reconstruction of boundary conditions for star graphs*, Inverse Problems and Imaging, **4** (2010), no. 4, 579–598.

34. 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.

35. 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.

36. S. Avdonin and V. Mikhaylov, *The boundary control approach to inverse spectral theory*, Inverse Problems, **26** (2010), no. 4, 045009, 19 pp.

37. S. Avdonin, B. Belinskiy and L. Pandolfi, *Controllability of a nonhomogeneous string and ring under time dependent tension*, Math. Modeling of Natural Phenomena, **5** (2010), no. 4, 4–31.

38. A. V. Arguchintsev, S. A. Avdonin, V. P. Poplevko, *Optimization of hyperbolic systems with integral constraints for smooth controls*, Izv. Irkutsk. Univ., Ser. Mat. (2010), no. 3, 1–12.

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

40. 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.

41. 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.

42. 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.

43. 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.

44. 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.

45. 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.

46. 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.

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

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

49. 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.

50. S. Avdonin, V. Mikhaylov and A. Rybkin, *The boundary control approach to the Titchmarsh-Weyl m−function,* Communications in Mathematical Physics, **275** (2007), no. 3, 791–803.

51. S. Avdonin, A. Bulanova and W. Moran, *Construction of sampling and interpolating sequences for multi-band signals. The two-band case,* International Journal of Applied Math. and Computer Science, **17** (2007), no. 2, 101–113.

52. 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.

53. 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*, Journal of Physics A, **38** (2005), 4825–4833.

54. 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.

55. 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.

56. 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.

57. 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.

58. 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.

59. 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.

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

61. 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.

62. S. Avdonin and W. Moran, *Ingham type inequalities and Riesz bases of divided differences*, International Journal of Applied Math. and Computer Science, **11** (2001), no. 4, 101–118.

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

64. 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.

65. 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.

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

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

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

69. 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.

70. 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.

71. 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.

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