Andrei A. Agrachev
Curriculum Vitae

Mailing Address

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Born

March 29, 1952. Moscow, USSR

Education

Moscow State University, 1969 – 1977 (undergraduate, graduate, and post-graduate studies)

Degrees and Honors

- Ph.D., Moscow State University 1977. Title of Ph.D. Thesis: "Second Order Necessary Optimality Conditions."

- Doctor of Sciences, Steklov Mathematical Institute 1989. Title of Doctoral Dissertation: "Topology of Quadratic Mappings and Optimal Control Theory."

- Soviet Academy of Sciences Award in Mathematics, 1989.

- Invited Speaker at the International Congress of Mathematicians ICM-94 in Zürich, Switzerland.

- Member of the Nevanlinna Prize Committee of the International Mathematical Union for ICM-2002 in Beijing, China.

- American Mathematical Society featured review, 2002.

- Panel core member of the International Mathematical Union for ICM-2010 in Hyderabad, India.

Professional Activity

- All-Union Institute for Scientific Information (VINITI), Moscow, Russia, 1977 – 92. Positions: researcher, senior researcher, leading researcher.

- Steklov Mathematical Institute, Moscow, Russia, 1992 – present. Positions: leading researcher, external collaborator.

- Moscow State University, Department of Mechanics and Mathematics, 1989 – 1997. Positions: associate professor, full professor.

- International School for Advanced Studies, Trieste, Italy, 2000 – present. Position: full professor.

- Member of scientific committees of the international conferences: NOLCOS'92 at Bordeaux, France; NOLCOS'95 at Taxoe City, USA; MTNS'96 at St. Louis, USA; NOLCOS'98 at Twente, The Netherlands; Differential Equations and Dynamical Systems, 2000, 2006, 2008, 2010, 2012 at Suzdal, Russia; Feedback and Optimal Control, 2003 at Siena, Italy; NOLCOS'04 at Stuttgart, Germany; IFIP TC7, 2005 at Turin, Italy; NOLCOS'07 at Pretoria, South Africa; Mathematical Control Theory: Controllability, Optimization, Stability, 2009 at Turin, Italy; New Trends in Sub-Riemannian Geometry, 2010 at Nice, France; trimester "Combinatorics and Control", 2010 at Madrid, Spain; NOLCOS'10 at Bologna, Italy; several conferences in SISSA, Trieste, and others.

- Director of the Summer School on Mathematical Control Theory, 2001, ICTP, Trieste, Italy.

- Co-director of the European multi-partner Marie Curie Training Site, 2002 – 2006.

- Director of the Trimester on Dynamical and Control Systems, 2003, SISSA–ICTP, Trieste, Italy.

- National coordinator of the MIUR research projects in 2002 – 2003, 2005 – 2006, 2007 – 2008 and 2010 – 2011.

- Member of the scientific committee of the European Research Group project "Control of partial differential equations" started in 2010.

- Head of the research project "Geometric control theory and analysis on metric structures" supported by the Russian Federation, 2013–2015.

- Co-organizer of the Trimester "Geometry, analysis and dynamics on subriemannian manifolds", 2014, Institute Henri Poincaré, Paris, France.

- Associate Editor of the SIAM Journal on Control and Optimization, 1993 – 1998.

- Editor-in-Chief of the Journal of Dynamical and Control Systems since 2003 (managing editor, 1995 – 2002); member of the editorial boards of other 5 journals.

- Member of the Board of the Moscow Mathematical Society, 1996 – 1998.

- Scientific consultant of the International Center for Theoretical Physics, Trieste, Italy, 2001 – 2003.

- Selected visiting positions: Institute for Mathematics and its Applications, Minneapolis, USA (Feb. – March 1993); University of Florence, Italy (Nov. 1994 – Feb. 1995, Nov. – Dec. 1996); Bourgogne University, France (May – July 1996, Oct. – Dec. 1997, Feb. – June 1998, May – July 1999); Institute Henri Poincaré, Paris, France (Jan. 1998); International School for Advanced Studies, Trieste, Italy (Nov. – Dec. 1998, Feb. – Apr. 1999, Sept. 1999 – Jan. 2000); Mittag Leffler Institute, Sweden (March – Apr. 2003); University of Nice, France (April – May 2007, May – June 2008); Ecole Polytechnique, France (Fall 2013); Institute Henri Poincaré, France (Fall 2014)

- Over 130 research papers on Control Theory, Optimization, Geometry, and the book "Control Theory from the Geometric Viewpoint" with Yu. Sachkov (Springer Verlag, 2004, xiv+412 pp.).

Former Ph. D. students

- Andrey Sarychev, 1980, Phys.-Tech. Univ., Moscow.

- Igor Zelenko, 2002, Technion, Haifa.

- Mario Sigalotti, 2003, SISSA, Trieste.

- Natalia Chtcherbakova, 2004, SISSA, Trieste.

- Thomas Chambrion, 2004, Univ. de Bourgogne, Dijon.

- Ulysse Serres, 2006, Univ. de Bourgogne, Dijon.

- Paolo Mason, 2006, SISSA, Trieste.

- Francesca Chittaro, 2007, SISSA, Trieste.

- Sergio Rodrigues, 2008, Univ. of Aveiro.

- Marco Caponigro, 2009, SISSA, Trieste

- Chengobo Li, 2009, SISSA, Trieste

- Francesco Rossi, 2009, SISSA, Trieste

- Roberta Ghezzi, 2010, SISSA, Trieste

- Antonio Lerario, 2011, SISSA, Trieste

- Davide Barilari, 2011, SISSA, Trieste

- Luca Rizzi, 2014, SISSA, Trieste

- Dario Prandi, 2014, SISSA, Trieste

- Alessandro Gentile, 2014, SISSA, Trieste

Some Recent Papers

1. Dynamics control by a time-varying feedback. J. Dynamical and Control Systems, 2010, v.16, 149–162 (with M. Caponigro)

2. Generalized Ricci curvature bounds for three dymensional contact subriemannian manifolds. Math. Ann., 2014, v.360, 209–253 (with P. Lee)

3. Well-posed infinite horizon variational problems on a compact manifold. Proceed. Steklov Math. Inst., 2010, v.268, 17–31

4. Two-dimensional almost Riemannian structures with tangency points. Annales de l'Institut Henri Poincaré—Analyse non linéaire, 2010, v.27, 793–807 (with U. Boscain, G. Charlot, R. Ghezzi, M. Sigalotti)

5. Continuity of optimal control cost and its application to weak KAM theory. Calculus of Variations and Part. Dif. Eq., 2010, v.39, 213–232 (with P. Lee)

6. Invariant Lagrange submanifolds of dissipative systems. Russian Math. Surveys, 2010, v.65, 977–978

7. On the Hausdorff volume in sub-Riemannian geometry. Calculus of Variations and Part. Dif. Eq., 2012, v.43, 355–388 (with D. Barilari, U. Boscain)

8. Sub-Riemanian structures on 3D Lie groups. J. Dynamical and Control Systems, 2012, v.18, 21–44 (with D. Barilari)

9. On robust Lie-algebraic stability conditions for switched linear systems. Systems and Control Letters, 2012, v.61, 347–353 (with Yu. Baryshnikov, D. Liberzon)

10. Systems of quadratic inequalities. Proceed. London Math. Soc., 2012, v.105, 622–660 (with A. Lerario)

11. Bishop and Laplacian comparison theorems on 3D contact sub-Riemannian manifolds with symmetry. J. Geom. Anal., 2015, v.25, 512–535 (with P. Lee)

12. On the space of symmetric operators with multiple ground states. Func. Anal. and its appl., 2011, v.45, 241–251

13. Quadratic cohomology. Arnold Math. J., to appear

14. Some open problems. In: "Geometric Control Theory and Sub-Riemannian Geometry", Springer INDAM Series, 2014, 1–13

15. The curvature: a variational approach. ArXiv:1306.5318, 88 p. (with D. Barilari and L. Rizzi)

16. On conjugate times for LQ optimal control problems. J. Dynamical and Control Systems, to appear (with L. Rizzi and P. Silveira)

17. Geodesics and horizontal-path spaces in Carnot groups. Geometry & Topology, to appear (with A. Gentile and A. Lerario)