Curriculum Vitae

Boris Kalinin

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Academic Positions

2020-present	Professor, Department of Mathematics, The Pennsylvania State University;
2012-2020	Associate Professor, Department of Mathematics, The Pennsylvania State University;
2007-2012	Associate Professor, Department of Mathematics and Statistics, University of South Alabama;
2003-2007	Assistant Professor, Department of Mathematics and Statistics, University of South Alabama;
2000-2003	Postdoctoral Assistant Professor, Department of Mathematics, University of Michigan, Ann Arbor.

Education

2000 Ph.D. in Mathematics, The Pennsylvania State University,

1995 B.S. in Mathematics (Diploma with distinction), St. Petersburg State University, Russia.

Awards

- National Science Foundation individual grant DMS-0140513, 2002-2006
- National Science Foundation individual grant DMS-0701292, 2007-2011
- National Science Foundation individual grant DMS-1101150, 2011-2014
- Simons Foundation individual grant 426243, 2016-2021
- Simons Foundation individual grant 855238, 2021-2026

Professional Organizations: Member of the American Mathematical Society.

Research Interests: Dynamical systems, smooth ergodic theory, group actions.

Publications (available on my web page)

- Smooth local rigidity for hyperbolic toral automorphisms (with V. Sadovskaya and Z. Wang) Submitted.
- Non-stationary normal forms for contracting extensions.

 To appear in Dynamics and Related Subjects: 2020 Vision and an Agenda.
- Center foliation rigidity for partially hyperbolic toral diffeomorphisms. (with A. Gogolev and V. Sadovskaya) Submitted.
- Local rigidity of Lyapunov spectrum for toral automorphisms. (with A. Gogolev and V. Sadovskaya) Israel Journal of Math., 238 (2020), 389-403.
- Periodic approximation of Lyapunov exponents for Banach cocycles. (with V. Sadovskaya) Ergodic Theory and Dynamical Systems, **39** (2019) no. 3, 689-706.
- Lyapunov exponents of cocycles over non-uniformly hyperbolic systems. (with V. Sadovskaya) Discrete and Continuous Dynamical Systems, **38** (2018), no. 10, 5105-5118.
- Boundedness, compactness, and invariant norms for Banach cocycles over hyperbolic systems. (with V. Sadovskaya) Proceedings of the AMS 146 (2018), no. 9, 3801-3812.
- Normal forms for non-uniform contractions. (with V. Sadovskaya) Journal of Modern Dynamics, 11 (2017), 341-368.
- Normal forms on contracting foliations: smoothness and homogeneous structure. (with V. Sadovskaya) Geometriae Dedicata, 183 (2016), no. 1, 181-194.
- Holonomies and cohomology for cocycles over partially hyperbolic diffeomorphisms. (with V. Sadovskaya) Discrete and Continuous Dynamical Systems. **36** (2016), no. 1, 245-259.
- Global rigidity of higher rank Anosov actions on tori and nilmanifolds. (with D. Fisher and R. Spatzier; appendix by James F. Davis)

 Journal of the American Mathematical Society, **26** (2013), no. 1, 167-198.
- Linear cocycles over partially hyperbolic systems. (with V. Sadovskaya) Geometriae Dedicata, 167, (2013), 167-188.
- Nonuniform measure rigidity (with A. Katok and F. Rodriguez Hertz) Annals of Mathematics. **174** (2011), no. 1, 361-400.
- Livšic theorem for matrix cocycles
 Annals of Mathematics. 173 (2011), no. 2, 1025-1042.
- Local rigidity for Anosov automorphisms (with A. Gogolev and V. Sadovskaya) Mathematical Research Letters, 18 (2011), no. 5, 843-858.

- Totally non-symplectic Anosov actions on tori and nilmanifolds (with D. Fisher and R. Spatzier) Geometry and Topology 15 (2011), 191–216.
- Linear cocycles over hyperbolic systems and criteria of conformality (with V. Sadovskaya) Journal of Modern Dynamics, 4 (2010), no. 3, 419–441.
- On Anosov diffeomorphisms with asymptotically conformal periodic data (with V. Sadovskaya) Ergodic Theory and Dynamical Systems **29** (2009), no. 1, 117–136.
- New progress in nonuniform measure and cocycle rigidity (with A. Katok and F. Rodriguez Hertz) Electronic Research Announcements in Mathematical Sciences, **15** (2008), 79–92.
- On classification of resonance-free Anosov \mathbb{Z}^k actions (with V. Sadovskaya) Michigan Mathematical Journal, **55** (2007), no. 3, 651–670.
- Measure rigidity beyond uniform hyperbolicity: Invariant measures for Cartan actions on tori (with A. Katok) Journal of Modern Dynamics, 1 (2007), 123–146.
- On the classification of Cartan actions (with R. Spatzier) GAFA Geometric and Functional Analysis. 17 (2007), 468–490.
- Global rigidity for totally nonsymplectic Anosov \mathbb{Z}^k actions (with V. Sadovskaya) Geometry and Topology, **10** (2006), 929–954.
- Rigidity of the measurable structure for algebraic actions of higher rank abelian groups (with R. Spatzier) Ergodic Theory and Dynamical Systems, **25** (2005), no. 1, 175–200.
- On local and global rigidity of quasiconformal Anosov diffeomorphisms (with V. Sadovskaya) Journal of the Institute of Mathematics of Jussieu, 2 (2003), no. 4, 567–582.
- Measurable rigidity and disjointness for \mathbb{Z}^k actions by toral automorphisms (with A. Katok) Ergodic Theory and Dynamical Systems, **22** (2002), no. 2, 507–523.
- On pointwise dimension of nonhyperbolic measures (with V. Sadovskaya) Ergodic Theory and Dynamical Systems, **22** (2002), no. 6., 1783–1801.
- Invariant measures for actions of higher rank abelian groups (with A. Katok) Proceedings of Symposia in Pure Mathematics, Vol. **69** (2001), 593–637.
- Smoothness and singularities of convex hypersurfaces (with Yu. Burago) St. Petersburg Mathematical Journal, 8 (1997), no. 3, 399–411.
- Remarks on a theorem of Newman (with Yu. Burago) Siberian Mathematical Journal, **36** (1995), no. 5, 869–872.

Recent invited talks

- 2020 Vision for Dynamics Conference, PAN Banch Center, Bedlewo, Poland, 8/19.
- Conference in Smooth Dynamical Systems, Mittag-Leffler Institute, Sweden, 5/19.
- Ergodic Theory Workshop, University of North Carolina, Chapel Hill, 1/19.
- International conference Dynamics in Valparaiso, Valparaiso, Chile, 12/18.
- Ergodic Theory Workshop, University of North Carolina, Chapel Hill, 4/18.
- Department of Mathematics and Statistics Colloquium, University of Nevada, 2/18.
- Midwest Dynamical Systems Conference, Northwestern University, 11/17.
- Special Session on Fractal Geometry and Ergodic Theory, AMS Sectional Meeting at University of North Texas, 9/17.
- Workshop in Dynamical Systems and Related Topics, University of Maryland, 4/16.
- Ergodic Theory Workshop, University of North Carolina, Chapel Hill, 4/16.
- Special Session on Smooth and Symbolic Ergodic Theory. AMS Sectional Meeting at Rutgers University, 11/15.
- Rocky Mountain Dynamical Systems Conference, Provo, 6/15
- Special Session on Smooth Dynamical Systems and Ergodic Theory, AMS Sectional Meeting at Michigan State University, 4/15.

Recent seminar talks

- Dynamical Systems Seminar (zoom), KTH Sweden, 10/21
- Dynamical Systems Seminar, Michigan State University, 11/19
- Penn State Dynamics Working Seminar, 4/19
- CDSNS Colloquium, Georgia Institute of Technology, Atlanta, 2/19.
- Penn State Geometry Seminar, 2/19.
- Penn State Dynamical Systems Seminar, 11/18.
- Dynamical Systems Seminar, University of Chicago, 10/18.
- Dynamical Systems Seminar, University of Chicago, 4/17
- Dynamical Systems Seminar, IUPUI, 1/16
- Geometry and Topology Seminar, Binghamton University, 5/15

Professional service Served on NSF panels (2016 and 2020).

Refereeing for professional journals:

Annals of Mathematics, Advances in Mathematics, Communications on Pure and Applied Analysis, Discrete and Continuous Dynamical Systems, Duke Mathematical Journal, Ergodic Theory and Dynamical Systems, Forum Mathematicum, Inventiones Mathematicae, Israel Journal of Mathematics, Journal and Bulletin of the London Mathematical Society, Journal of the American Mathematical Society, Journal of the European Mathematical Society, Journal of Functional Analysis, Journal of Modern Dynamics, Mathematical Research Letters, Mathematische Annalen, Nonlinearity, Proceedings of the American Mathematical Society, Topology and its Applications.

Teaching

The Pennsylvania State University, 2012 - present:

- MATH 506 Ergodic Theory, Spring 2015, 2021.
- MATH 502 Complex Analysis, Spring 2020.
- MATH 497B Elements of Functional Analysis, Fall 2013.
- MATH 436 Linear Algebra, Spring 2016, Fall 2021.
- MATH 429 Introduction to Topology, Spring 2020.
- MATH 403H Honors Classical Analysis I, Fall 2012, 2016, 2020.
- MATH 403 Classical Analysis I, Fall 2014.
- MATH 401 Introduction to Analysis, Spring 2017.
- MATH 313H Honors Concepts of Geometry, Spring 2013.
- MATH 312H Honors Concepts of Real Analysis, Spring 2014.
- MATH 312 Concepts of Real Analysis, Spring 2014, 2017, Fall 2015, 2017.

University of South Alabama, 2003 - 2012:

- MA 537 Complex Analysis, Spring 2006.
- MA 536 Real Analysis II, Spring 2011.
- MA 535 Real Analysis I, Fall 2010.
- MA 508 Applicable Mathematics II, Fall 2003, 2008, Spring 2006, 2007.
- MA 504 Introduction to Geometry, Spring 2008.
- MA 501 Number Systems, Fall 2005.
- MA 494 Independent Studies, Spring 2005.
- MA 437 Complex Variables, Spring 2006.
- MA 335 Advanced Calculus II, Spring 2009.
- MA 334 Advanced Calculus I, Fall 2008.
- MA 321 Elementary Geometry, Spring 2008.
- MA 316 Linear Algebra II, Spring 2007, Spring 2012.
- MA 237 Linear Algebra I, Fall 2006, Fall 2007.
- MA 150 Contemporary Mathematics Seminar, Fall 2007.
- MA 125 Calculus I, Fall 2003, '05, '06, '10, '11, Spring 2004, '05, '11, '12.
- MA 113 Precalculus Trigonometry, Spring 2007.
- MA 112 Precalculus Algebra, Spring 2004, Fall 2004, Spring 2005.
- MA 110 Finite Mathematics, Spring 2009.

Teaching at the University of Michigan, 2000 - 2003:

- Math 490 Introduction to Topology, Winter 2003.
- Math 425 Introduction to Probability, Winter 2001, Winter 2003.
- Math 116 Calculus II, Winter 2001, Winter 2002, Fall 2002.
- Math 115 Calculus I, Fall 2000, Fall 2001.

Committee service and other activities

Committee service

The Pennsylvania State University, 2012 - present:

- Undergraduate Studies Committee, 2016 present
- Qualifying Examinations Committee, 2015 2016, 2020 present
- GTA Oversight Committee, 2012 2015

University of South Alabama, 2003-2012.

Service on college-level committees.

- Academic Programs and Planning Committee, 2010-2012.
- Summer Professional Development Awards Committee, 2006-2007.
- Support and Development Awards Committee, 2004-2005.

Service on departmental committees.

- Advisory Committee, 2007-2009, 2010-2011 (Chair).
- Assessment Committee, 2007-2009.
- Graduate Committee, 2006-2009, 2010-2012.
- Hiring Committee, 2005-2006, 2010-2011 (Chair).
- Library Committee (Chair), 2003-2004.
- Student Affairs Committee, 2004-2005.
- Reappointment committees.
- Textbook selection committees.

Selected other activities

- Organizer of Semi-annual Workshop in Dynamical Systems and Related Topics at the Pennsylvania State University, October 2012, 2013, 2014
- Organizer of Dynamical Systems Seminar at Penn State, Spring-Fall 2013
- Mini-series of talks for graduate students at Geometric Structures and Rigidity Summer School, Banach Center, Bedlewo, Poland, July 2008
- Coorganizer of the Annual Mathematecs Contest at the University of South Alabama, 2004, 2005, 2006, 2007, 2008.
- Master's Thesis and Comprehensive Exam Committee member for Engineering graduate students at University of South Alabama.