Scott Schmieding

Contact Information

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Research Interests

Topological dynamics, symbolic dynamics, K-theory, aperiodic tilings

Education

University of Maryland

Ph.D. in Mathematics, May 2016

- Dissertation Topic: Strong shift equivalence, algebraic K-theory, isolating zero-dimensional dynamics on manifolds
- Advisor: Mike Boyle

Montana State University

M.S. in Mathematics, May 2010
B.S. in Mathematics, May 2008

Appointments

2019 - present University of Denver, Visiting Assistant Professor

2016 - 2019 Northwestern University, RTG Postdoctoral Fellow

Winter 2016 University of Copenhagen, Visiting position

Travel Funding

Oberwolfach Travel Grant, October 2015

MRC Travel Grant, June 2017.

Publications

Mike Boyle, Scott Schmieding, *Symbolic dynamics and the stable algebra of matrices,* **submitted**, 2021, arXiv:2006.01051

Ronnie Pavlov, Scott Schmieding, *Local finiteness and automorphism groups of low complexity subshifts,* **Ergodic Theory and Dynamical Systems**, to appear, 2021.

Scott Schmieding, *Local $\mathcal{P}$ entropy and stabilized automorphism groups of subshifts,* **Inventiones Mathematicae**, 2021, to appear, arXiv:2007.02183.

Yair Hartman, Bryna Kra, Scott Schmieding, *The stabilized automorphism group of a subshift,* **International Mathematics Research Notices**, 2021, to appear, arXiv:2001.09530.

Scott Schmieding, Rodrigo Treviño, *Random substitution tilings and deviation phenomena,* **Discrete and Continuous Dynamical Systems**, 41(8):3869–3902, 2021.

Scott Schmieding, Kitty Yang, *The mapping class group of a minimal subshift*, **Colloquium Mathematicum**, 163(2):233–265, 2021.

Scott Schmieding, *Automorphisms of the shift: Lyapunov exponents, entropy, and the dimension representation,* **Ergodic Theory and Dynamical Systems**, 40(9):2552–2570, 2020.

Mike Boyle, Scott Schmieding, *Strong shift equivalence and algebraic K-theory,* **Journal für die reine und angewandte Mathematik (Crelle's Journal)**, 752:63–104, 2019.

Scott Schmieding, Rodrigo Treviño, *Traces of random operators associated with self-affine Delone sets and Shubin's formula,* **Annales Henri Poincaré**, 19(9):2575–2597, 2018.

Scott Schmieding, Rodrigo Treviño, *Self affine Delone sets and deviation phenomena,* **Communications in Mathematical Physics**, 357(3):1071–1112, 2018.

Scott Schmieding, *Explicit examples in NK_1,* preprint. http://arxiv.org/abs/1506.07418

Mike Boyle, Scott Schmieding, *Finite group extensions of shifts of finite type: K-theory, Parry and Livšic,* **Ergodic Theory and Dynamical Systems**, 37(4):1026–1059, 2017.

Mike Boyle, Scott Schmieding, *Strong shift equivalence and the generalized Spectral Conjecture for nonnegative matrices,* **Linear Algebra and its Applications**, 498:231–243, 2016.

Marcy Barge, Johannes Kellendonk, Scott Schmieding, *Maximal equicontinuous factors and cohomology for tiling spaces,* **Fundamenta Mathematicae**, 218(3):243–268, 2012.

Invited Talks

Flow equivalence and mapping class groups for symbolic systems, NYC Noncommutative Geometry Seminar (July 2021).

Stabilizations of automorphism groups and local $\mathcal{P}$ entropy, ETDS Seminar at Warwick (January 2021).

Local $\mathcal{P}$ entropy and stabilized automorphism groups, Algebraic and Combinatorial Invariants of Subshifts and Tilings at CIRM (January 2021).

Local $\mathcal{P}$ entropy and stabilizations in symbolic dynamics, University of Maryland Dynamics Seminar (June 2020).

Stabilized automorphism groups, Expanding Dynamics Online Conference (May 2020).

Stabilizations for automorphism groups of symbolic systems, Minisymposium on Discrete Dynamical Systems (August 2019)

Symbolic dynamics and the stable algebra of matrices, Minicourse (joint with Mike Boyle) for G2D2 2019 (August 2019).

The stabilized automorphism group of a subshift, Symbolic Dynamical Systems, CMO-BIRS (May 2019).

The stabilized automorphism group of a shift of finite type, 2019 Maryland Workshop on Dynamical Systems (April 2019).

Automorphism groups and their stabilizations, Be'er Sheva Seminar (March 2019).

The mapping class group of a minimal subshift, AMS Special Session on Symbolic Dynamics (January 2019).

Lyapunov exponents, entropy, and automorphisms, University of Victoria Seminar (April 2018).

Entropy bounds and Lyapunov exponents for automorphisms, Dynamical Systems Seminar at BYU (January 2018).

Automorphisms of the shift: Lyapunov exponents and the dimension representation, Midwest Dynamical Systems Conference (November 2017).

Classification, strong shift equivalence, and K-theory, Northwestern Dynamical Systems Seminar (October 2016).

Isolating zero-dimensional dynamics on manifolds, Special Session on Zero Dimensional Dynamics (October 2016).

Strong shift equivalence of matrices over a ring, Copenhagen Operator Algebra Seminar (January 2016).

Gähler and Anderson-Putnam Complexes, Mathematisches Forschungsinstitut Oberwolfach (October 2015).

Dynamics of isolated invariants sets, Rocky Mountain Dynamical Systems Conference, Provo, Utah (June 2015).

Strong shift equivalence and algebraic K-theory, Special Session on Number Theory in Ergodic Theory and Dynamical Systems, Georgetown University (March 2015).

Strong shift equivalence of matrices over a ring, Semi-annual Workshop in Dynamical Systems and Related Topics, Penn State (October 2013).

Isolating dynamics on manifolds, Carolina Dynamics, University of North Carolina (April 2013).

Maximal equicontinuous factors and cohomology for tiling spaces, Special Session on Tilings, Substitutions, and Bratteli-Vershik Transformation, George Washington University (March 2012).

Conference and Seminar Organization

Expanding Dynamics, a recurring monthly online conference which culminated in a Summer School, May 2020 through June 2021.
https://eventos.cmm.uchile.cl/expandingdynamics/

AIMS Conference, Special Session on Symbolic Dynamics, June 2020 (postponed due to COVID).

Northwestern Dynamical Systems Seminar, co-organizer.

AMS JMM - Special Session on Symbolic Dynamics, January 2020.

AMS JMM - Special Session on Dynamical Systems: Smooth, Symbolic, and Probability, January 2018.

Mentorship

Directed Reading Program, UMD Led a reading program with undergraduate student.

Teaching and Grading

University of Denver

2019-present
Instructor:
Calculus 1,2
Differential Equations
Linear Algebra
Mathematics of Games

Northwestern University

2016-2019
Instructor:
Calculus 1,2
Integral Calculus
Differential Multivariable Calculus
Linear Algebra
Differential Equations
Topics in Symbolic Dynamics

University of Maryland

2010-2016
Instructor: Precalculus, Elementary Calculus I, Calculus I
Teaching Assistant: Calculus I, II, III, Linear Algebra
Grader: Adv. Calc. 1, Topology