

TODD FISHER

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PROFESSIONAL EXPERIENCE

Associate Professor, Brigham Young University, September 2013-present.

Assistant Professor, Brigham Young University, June 2007-August 2013.

Research Associate, University of Maryland, September 2004-June 2007.

ACADEMIC PREPARATION

Ph.D. Mathematics, Northwestern University, June 2004. Thesis: *On the Structure of Hyperbolic Sets*, Advisor: Amie Wilkinson.

M.S. Mathematics, Brigham Young University, August 1999. Thesis: *Qualitative Behavior for a Nonlinear Convection-Diffusion Equation with Conservation*, Advisor: Christopher Grant.

B.S. Mathematics, Minor Physics, Brigham Young University, April 1998.

REFEREED JOURNAL PUBLICATIONS

1. *Blowup in a Mass-Conserving Convection-Diffusion Equation with Superquadratic Nonlinearity*, with Christopher P. Grant, Proceedings of the American Mathematical Society, **129**, 3353–3362, 2001.
2. *Hyperbolic Sets with Nonempty Interior*, Discrete Contin. Dyn. Syst. **15**, no. 2, 433-446, 2006.
3. *Hyperbolic Sets that are Not Locally Maximal*, Ergodic Theory and Dynamical Systems, **26**, no. 5, 1491-1509, 2006.
4. *The Topology of Hyperbolic Attractors on Compact Surfaces*, Ergodic Theory and Dynamical Systems, **26**, no. 5, 1511-1520, 2006.
5. *Supergrowth of the number of periodic orbits for non-hyperbolic homoclinic classes*, joint work with Lorenzo J. Díaz and Christian Bonatti, Discrete Contin. Dyn. Syst., **20**, no. 3, 589-604, 2008.
6. *Trivial centralizers for Axiom A diffeomorphisms*, Nonlinearity, **21**, no. 11, 2505-2517, 2008.

7. *Trivial centralizers for codimension-one attractors*, Bull. Lond. Math. Soc., **41**, no. 1, 51-56, 2009.
8. *Markov partitions for hyperbolic sets*, joint work with Himal Rathnakumara, Involve, **2**(5), 547-555, 2009.
9. *Quasi-Anosov diffeomorphisms of 3-manifolds*, joint work with Jana Rodriguez Hertz, Trans. Amer. Math. Soc., **36**, 3707-3720, 2009.
10. *Symbolic extensions for partially hyperbolic diffeomorphisms*, joint work with Lorenzo J. Díaz, Discrete Contin. Dyn. Syst., **29**, no. 4, 1419-1441, 2011.
11. *Maximal entropy measures for certain partially hyperbolic, derived from Anosov systems*, joint work with Jérôme Buzzi, Martin Sambarino, and Carlos Vásquez, Ergodic Theory and Dynamical Systems, **32**, no. 1, 63-79, 2012.
12. *Entropy-expansiveness for partially hyperbolic diffeomorphisms*, joint work with L. J. Díaz, M. J. Pacifico, and J. L. Vieitez, Discrete Contin. Dyn. Syst., **32**, no. 12, 4195 - 4207, 2012.
13. *Symbolic extensions for partially hyperbolic dynamical systems with 2-dimensional center bundle*, joint work with David Burguet, Discrete Contin. Dyn. Syst., **33**, no. 6, 2253-2270, 2013..
14. *Resolving extensions of finitely presented systems*, Acta Applic. Math., **126**, no. 1, 131-163, 2013.
15. *Entropic stability beyond partial hyperbolicity*, joint work with Jérôme Buzzi, Journal of Modern Dynamics, **7**, no. 4, 527-552, 2013.
16. *Dynamical coherence for partially hyperbolic diffeomorphisms isotopic to Anosov*, joint work with Rafael Potrie and Martin Sambarino, Mathematische Zeitschrift, 278, Issue 1-2, 149-168, 2014.
17. *Open sets of diffeomorphisms with trivial centralizer in the C^1 topology*, joint work with Lennard Bakker, Nonlinearity, 27, 2859-2885, 2014.
18. *Topological properties of invariant sets for hyperbolic total automorphisms of surfaces*, joint work with Skyler Simmons, Dynamical Systems, 30, no. 1, 23-33, 2015.
19. *Equilibrium states for the robustly transitive diffeomorphisms of Mane and Bonatti-Viana*, joint work with Vaughn Climenhaga and Dan J. Thompson, submitted, 2015.
20. *Nonlocally maximal and premaximal hyperbolic sets*, joint work with Taylor Petty and Sergey Tikhomirov, submitted, 2015.

OTHER PUBLICATIONS

1. *Uniformly hyperbolic attractors*, www.scholarpedia.org/article/Uniformly_hyperbolic_attractors
2. *On the Structure of Hyperbolic Sets*, Ph. D. dissertation.
3. *Qualitative Behavior for a Nonlinear Convection-Diffusion Equation with Conservation*, Masters Thesis, Brigham Young University, 1999.

INVITED PRESENTATIONS

- Dynamics Beyond Uniform Hyperbolicity, Olmue, Chile, Sept 2015.
- AMS Central Sectional Meeting, Lansing, MI, Mar 2014.
- University of Houston, Houston, Dynamics Seminar, TX, Sept 2014.
- University of California, Irvine, Dynamics Seminar, CA, May 2014.

- AMS Western Sectional Meeting, Albuquerque, NM, Apr 2014.
- Ohio State University, Departmental Colloquium, Ohio, Mar 2014.
- AMS Western Sectional Meeting, Riverside, CA, Nov 2013.
- Dynamical Systems Seminar - University of Chicago, Oct 2013.
- Max Dehn Seminar - University of Utah, Aug 2013.
- Dynamical Systems Seminar - Université Paris-Sud, Paris, France, July 2013.
- International Conference Beyond Uniform Hyperbolicity, Bedlewo, Poland, June 2013.
- Dynamical Systems Seminar, State College, PA, Apr 2013.
- A Week on Dynamical Systems at IM-UFRJ, Rio de Janeiro, Brazil, Jan 2013.
- Dynamical Systems Seminar, Evanston, IL, Oct 2012.
- Montevideo Dynamical Systems Conference 2012, Montevideo, Uruguay, August 2012.
- ICTP-ESF School and Workshop in Dynamical Systems, Trieste, Italy, June 2012.
- Dynamical Systems Seminar, Univ. of Maryland, May 2012.
- The Sixth International Conference on Differential and Functional Differential Equations, Moscow, Russia, Aug 2011.
- Semi-annual Workshop in Dynamical Systems at Univ. of Maryland, Apr 2011.
- Workshop on Partial Hyperbolicity at IM-UFRJ, Rio de Janeiro, Brazil, Jan 2011.
- Pontifícia Universidade Católica do Rio de Janeiro, Dynamics Seminar, Rio de Janeiro, Brazil, August 2010.
- University of California, Irvine, Dynamics Seminar, California, USA, May 2010.
- Université Paris-Sud, Topology and Dynamics Seminar, Paris, France, May 2010.
- International workshop on global dynamics beyond uniform hyperbolicity, Beijing, China, Aug 2009.
- Summer School on Nonlinear and Stochastic Dynamics, Sichuan University, Chengdu, China, June 2009.
- International Conference on Nonlinear and Stochastic Dynamics, Chengdu, China, June 2009.
- Rio dynamical systems seminar, PUC-Rio, Rio de Janeiro, Brazil, May 2009.
- Semi-annual Workshop in Dynamical Systems at Maryland, Apr 2009.
- MAA Regional conference, Provo, Mar 2009.
- Steven F. Austin State University, Departmental Colloquium, Texas, November 2008.
- REU, Provo, July 2008.
- University of California, Irvine, Dynamics Seminar, May 2008.
- Joint Meetings, Special session on hyperbolic dynamics, San Diego, California, Jan 2008.
- AMS Central Sectional Meeting, Chicago, Illinois, Oct 2007.
- AMS Southeastern Sectional Meeting, Davidson, North Carolina, March 2007.
- Semi-annual Workshop in Dynamical Systems and Related Topics, State College, Nov 2006.
- Brigham Young University, Departmental Colloquium, Sept 2006.
- AMS Western Sectional Meeting, San Francisco, California, April 2006.
- Montclair State University, Departmental Seminar, April 2006.
- University of Maryland Baltimore Campus, Diff Eq Seminar, March 2006.
- George Washington University, Dynamics Seminar, October 2005.
- Midwest Dynamical Systems Conference, Ann Arbor, April 2004.

- AMS Midwest Regional Meeting, Athens Ohio, March 2004.
- Semi-annual Workshop in Dynamical Systems at Maryland, March 2004.
- International Workshop on Robustness and Partial Hyperbolicity, Buzios, Brazil, November 2003.
- Elmhurst College, Illinois, October 2003.
- Semi-annual Workshop in Dynamical Systems at Maryland, March 2003.

ACADEMIC VISITS

- Université Paris-Sud, Orsay, France, June 22-July 2, 2013.
- PUC-Rio, Rio de Janeiro, Brazil, August 23- Sept 4, 2010.
- Université Paris-Sud, Orsay, France, May 4-16, 2010.
- PUC-Rio, Rio de Janeiro, Brazil, May 2-10, 2009.

STUDENTS SUPERVISED

1. Himel Rathnakumara, Undergraduate student, Project: *Markov partitions for hyperbolic sets*, 2008.
2. Skyler Simmons, Masters student, Thesis: *Anosov maps with holes*, 2009-2011.
3. Taylor Petty, Masters student, Project: *Hyperbolic sets that are not locally maximal for flows*, 2013-2015.

HONORS

- *Simons Collaboration Grant*, Sept 2012.
- *AIM Square Grant*, June 2014.
- *Distinguished Citizenship Award*, BYU Mathematics Department, December 2013.
- *Distinguished Teaching Award*, BYU Mathematics Department, August 2011.
- Project NExT Fellow, 2007-2008.
- *Northwestern University Searle Center for Teaching Excellence Teaching Assistant Fellow*, Northwestern University, 2001.
- *Excellence in Teaching Award*, Brigham Young University Department of Mathematics, 1999.

CITIZENSHIP

- Organizer for the Rocky Mountain Dynamical Systems Conference, June 2015.
- Organizer for a special session at the 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid, Spain, July 2014.
- Organizer for a special session at the Joint Mathematics Meetings, Jan 2012.
- Organizer for Pingree Park Dynamical Systems Workshop, August 2010.
- Organizer for the Rocky Mountain Conference on Dynamical Systems, May 2008.
- Organizer for a special session on research, Regional MAA conference, Provo, March 2008.
- Judge for the poster session at the Joint Mathematics Meeting, January 2008.
- Organizer for a special session at the Joint Mathematics Meeting, January 2008.
- Organizer for special session at the Joint Mathematics Meeting, January 2006.
- Reviewer for Mathematical Reviews, 2007-present.

- Referee for *Ergodic Theory and Dynamical Systems*, *Moscow Mathematical Journal*, *Nonlinearity*, *Dynamical Systems an International Journal*, *Proceedings of the AMS*, and *Journal of Modern Dynamics*.

CONFERENCES ATTENDED

- *Dynamics Beyond Uniform Hyperbolicity*, Olmue, Chile, Sept 2015.
- *Rocky Mountain Dynamical Systems Conference*, Provo, UT, June 2015.
- *AMS Central Sectional Meeting*, Lansing, MI, Mar 2015.
- *Midwest Dynamical Systems Conference*, Ann Arbor, MI, Nov 2014.
- *The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications*, Madrid, Spain, July 2014.
- *AMS Western Sectional Meeting*, Riverside, CA, Nov 2013.
- *Semi-annual Workshop in Dynamical Systems and Related Topics*, State College PA, Oct 2013.
- *International Conference Beyond Uniform Hyperbolicity*, Bedlewo, Poland, June 2013.
- *A Week on Dynamical Systems at IM-UFRJ*, Rio de Janeiro, Brazil, Jan 2013.
- *Midwest Dynamical Systems Conference*, South Bend, IN, Oct 2012.
- *Montevideo Dynamical Systems Conference 2012*, Montevideo, Uruguay, August 2012.
- *ICTP-ESF School and Workshop in Dynamical Systems*, Trieste, Italy, June 2012.
- *Sixth International Conference on Differential and Functional Differential Equations*, Moscow, Russia, Aug 2011.
- *Trends in Dynamics*, Evanston, IL, Apr 2011.
- *Semi-annual Workshop in Dynamical Systems*. University of Maryland, Apr 2011.
- *Workshop on Partial Hyperbolicity at IM-UFRJ*, Rio de Janeiro, Brazil, Jan 2011.
- *Pingree Park Dynamical Systems Workshop*, Fort Collins, Colorado, August 2010.
- *Semi-Annual Workshop in Dynamical Systems*, University of Maryland, April 2010.
- *International workshop on global dynamics beyond uniform hyperbolicity*, Beijing, China, Aug 2009.
- *International Conference on Nonlinear and Stochastic Dynamics*, Chengdu, China, June 2009.
- *Semi-Annual Workshop in Dynamical Systems*, University of Maryland, April 2009.
- *Rocky Mountain Conference on Dynamical Systems*, Park City, Utah, May 2008.
- *Semi-Annual Workshop in Dynamical Systems*, University of Maryland, March 2008.
- *Regional MAA Meeting*, Provo, Utah, March 2008.
- *Joint Mathematics Meeting*, San Diego, California, January 2008.
- *Midwest Dynamical Systems* Ann Arbor, MI, Oct 2007.
- *AMS Central Sectional Meeting*, Chicago, Illinois, Oct 2007.
- *Mathfest*, San Jose, California, Aug 2007.
- *AMS Southeastern Sectional Meeting*, Davidson, North Carolina, March 2007.
- *Semi-annual Workshop in Dynamical Systems and Related Topics*, State College PA, Nov 2006.
- *International Workshop on Global Dynamics Beyond Uniform Hyperbolicity*, Chicago, May 2006.
- *AMS Western Sectional Meeting*, San Francisco, April 2006.
- *Semi-Annual Workshop in Dynamical Systems*, University of Maryland, March 2006.

- *Joint Mathematics Meeting*, San Antonio Texas, January 2006.
- *Partially Hyperbolic Dynamics, Laminations, and Teichmuller Flow Workshop*, Fields Institute, Toronto, Canada, January 2006.
- *Midwest Dynamical Systems*, Evanston Illinois, October 2005.
- *Semi-Annual Workshop in Dynamical Systems*, Penn State, October 2005.
- *Northwest Dynamics Symposium*, Victoria, Canada, August 2005.
- *International Congress on Dynamical Systems*, Angra dos Reis, Brazil, August 2005.
- *Midwest Dynamical Systems*, Minneapolis Minnesota, April 2005.
- *Semi-Annual Workshop in Dynamical Systems*, University of Maryland, March 2005.
- *Midwest Dynamical Systems*, Ann Arbor Michigan, April 2004.
- *AMS Midwest Regional Meeting*, Athens Ohio, March 2004.
- *Semi-Annual Workshop in Dynamical Systems*, University of Maryland, March 2004.
- *International Workshop on Robustness and Partial Hyperbolicity*, Buzios Brazil, November 2003.
- *Semi-Annual Workshop in Dynamical Systems*, Penn State, October 2003.
- *Midwest Dynamical Systems*, Indiana University - Purdue University Indianapolis, October 2003.
- *Midwest Dynamical Systems*, Northwestern University, April 2003.
- *Semi-Annual Workshop in Dynamical Systems*, University of Maryland, March 2003.
- *Midwest Dynamical Systems*, University of North Carolina Asheville, April 2002.
- *Midwest Dynamical Systems*, University of Colorado, October 2001.
- *Conference on Partial Hyperbolicity*, Northwestern University, June 2001.