

Curriculum Vitae

Zhiren Wang

Positions

- Assistant Professor, Pennsylvania State University, 2014-
- Gibbs Assistant Professor, Yale University, 2011-2014

Visiting Positions

- Member, Institute for Advanced Study, 2015-2016
- Postdoctoral Fellow, Mathematical Sciences Research Institute, Fall 2011

Education

- Ph.D., Mathematics, Princeton University, 2006-2011
Advisor: Prof. Elon Lindenstrauss
- M.S., Mathematics, University Paris-Sud (Orsay), 2005-2006
- M.S., Mathematics, Ecole Polytechnique, 2004-2006
- B.S., Mathematics, Fudan University, 2001-2004

Grants and Awards

- NSF Grant DMS-1501295, 2015-2018
- NSF Grant DMS-1201453, 2012-2016
- Gold prize for Ph.D. thesis, New World Mathematics Awards (by International Congress of Chinese Mathematicians), 2012
- Simons Travel Grant, American Mathematical Society, 2011-2013

Editorial board

- Discrete and Continuous Dynamical Systems, 2017-

Research interests

- Dynamical systems on homogeneous spaces
- Classification of group actions
- Diophantine approximation and geometry of numbers

Publications and Preprints

1. *Rigidity properties of abelian actions on tori and solenoids*
joint with M. Einsiedler and E. Lindenstrauss, in preparation
2. $\times 2, \times 3, \times 5$ -invariant subsets on \mathbb{T}^2
joint with E. Lindenstrauss, in preparation
3. *Möbius disjointness for skew products on the Heisenberg nilmanifold*
joint with M. Litman, preprint
4. *Measure complexity and Möbius disjointness*
joint with W. Huang and X. Ye, preprint

5. *Invariant measures and measurable projective factors for actions of higher-rank lattices on manifolds*
joint with A. Brown and F. Rodriguez Hertz, submitted
6. *Smooth ergodic theory of \mathbb{Z}^d -actions, Part 3: Product structure of entropy*
joint with A. Brown and F. Rodriguez Hertz, submitted
7. *Möbius disjointness for topological models of ergodic systems with discrete spectrum*
joint with W. Huang and G. Zhang, submitted
8. *Global smooth and topological rigidity of hyperbolic lattice actions*
joint with A. Brown and F. Rodriguez Hertz, *Annals of Mathematics* (2017), Vol. 186 (3), 913-972
9. *Möbius disjointness for analytic skew products*
Inventiones Mathematicae (2017), Vol. 209 (1), 175196
10. *Multi-invariant measures and subsets on nilmanifolds*
Journal d'Analyse Mathématique, accepted
11. *Global rigidity of abelian algebraic actions*
joint with F. Rodriguez Hertz, *Inventiones Mathematicae* (2014), Vol. 198 (1), 165-209
12. *Remarks on Euclidean minima*
joint with U. Shapira, *J. of Number Theory* (2012), Vol. 137, 93-121
13. *Rigidity of commutative non-hyperbolic actions by toral automorphisms*
Ergodic Theory & Dynamical Sys. (2012), Vol. 32, 1752-1782
14. *Topological self-joinings of Cartan actions by toral automorphisms*
joint with E. Lindenstrauss, *Duke Math. Journal* (2012), Vol. 161, 1305-1350
15. *Quantitative density under higher rank abelian algebraic toral actions*
Int. Math. Res. Notices (2011), Vol. 2011, 3744-3821

Ph.D. students

- Qiao Liu, co-advising with Anatole Katok
- Scott Conrad, co-advising with Federico Rodriguez Hertz

Referee services

- *Annals of Math.*
- *Inventiones Math.*
- *Israel Journal of Math.*
- *Duke Math. Journal*
- *Ergodic Theory and Dynamical Systems*
- *Journal of Modern Dynamics*
- *Int. Math. Res. Notices*
- *Discrete and Continuous Dyn. Sys.-Series A.*
- *Trans. Amer. Math. Soc.*
- *Topological Methods in Nonlinear Analysis*

Organizing services

- 2017 Co-organizer, The 28th Fall Workshop in Dynamical Systems and Related Topics, Penn State University
- 2017 Organizer, MOU 2017 (Math Outing for Undergraduates)
- 2016 Co-organizer, The 27th Fall Workshop in Dynamical Systems and Related Topics, Penn State University
- 2016- Co-organizer, Dynamical systems seminar, Penn State University
- 2015 Co-organizer, Special Session “Smooth and symbolic ergodic theory”, AMS Eastern sectional meeting, New Brunswick, NJ

Invited talks

- 2017: Dynamical systems seminar, Yale University
 - Dynamical systems seminar, Univ. of Chicago
 - Dynamical systems seminar, Purdue University
 - Workshop on Ergodic Theory & Dynamical Systems, National Univ. of Singapore
 - Mini-course (joint with A. Brown), 2017 International Conference “Dynamics Beyond Uniform Hyperbolicity”, Provo, Utah
- 2016: Pan-Asia Number Theory Conference, Taipei
 - Workshop “Ergodic Theory and Möbius Disjointness”, Marseille, France
 - Seminar, Chinese Univ. of Hong Kong
 - Mini-course, Central China Normal University
 - Dynamical system seminar, Fudan University
 - Dynamical Systems Seminar, Univ. of Science and Technology of China
 - Special Session “Homogeneous Dynamics”, AMS Eastern sectional meeting
 - Geometry seminar, Univ. of Michigan
 - Dynamical systems seminar, Michigan State Univ.
- 2015: Midwest Dynamical Systems Meeting, Ohio State Univ.
 - International Conference on Boundaries and Ergodic Geometry, Notre Dame Univ.
 - Conference “Advances In Homogeneous Dynamics”, MSRI, Berkeley, CA
 - Number theory seminar, Rutgers University
- 2014: Geometry and Topology Seminar, SUNY-Binghamton
 - Recent Progress in Dynamical Systems and Related Topics, Banff, Canada
 - Dynamical Systems Seminar, Graduate Center, City Univ. of New York
 - 2nd Rice Dynamics Workshop, Rice University
 - Maryland Workshop on Dynamical Systems, Univ. of Maryland
- 2013: Dynamics Seminar, Hebrew University of Jerusalem
 - Penn State Workshop on Dynamical Systems, Penn State Univ.
 - Group Actions Seminar, Univ. of Texas-Austin
 - Dynamical Systems Seminar, Northwestern University
 - Dynamics Seminar, University of Chicago
 - Invited lecture, International Congress of Chinese Mathematicians, Taipei

- Ergodic Theory Seminar, University Paris 6 & 7
 Rice Dynamics Workshop 2013, Rice University
 Dynamics of Group Actions Seminar, Yale Univ.
 Special session "Counting and Equidistribution", AMS Eastern Sectional Meeting
 Geometry Seminar, ETH Zürich
 Informal Geometry Seminar, Stanford Univ.
- 2012: Dynamical Systems Seminar, Penn State Univ.
 Algebra Seminar, Wesleyan Univ.
 Dynamics and Probability Seminar, Hebrew Univ. of Jerusalem
 Dynamics of Group Actions Seminar, Yale Univ.
 Chinese Univ. of Hong Kong
 Conference: Analysis and Number Theory, Chongqing Univ.
 Dynamical Systems Seminar, Univ. of Science and Technology of China
 Dynamical Systems Seminar, Fudan University, Shanghai
 National Univ. of Singapore
 Group Actions Seminar, Brown University
 Conference: Groups, Geometry, and Random Structure, Texas A&M Univ.
- 2011: Penn State Workshop on Dynamical Systems, Penn State Univ.
 Dynamical Systems Seminar, Rice University
 Dynamics and Probability Seminar, Hebrew Univ. of Jerusalem
 Dynamical Systems Seminar, Northwestern University
 Fudan University, Shanghai
- 2010: Ergodic Theory and Statistical Mechanics Seminar, Princeton University
 Oberwolfach workshop: Homogeneous Dynamics and Number Theory,
- 2009: Dynamics and Geometry Seminar, Penn State Univ.
 Group Actions Seminar, Princeton University
 Conference: Dynamical Numbers, Max-Planck-Institute, Bonn
 University of Science and Technology of China, Hefei
 Short talk, Maryland Workshop on Dynamical Systems, Univ. of Maryland
 Ergodic Theory and Probability Theory seminar, Ben-Gurion Univ., Israel
- 2008: Dynamics and Probability Seminar, Hebrew Univ. of Jerusalem

Contact information

Pennsylvania State University, Department of Mathematics, University Park, PA 16802
 zhirenw@psu.edu