Dylan Airey
Curriculum Vitae

Department of Mathematics

Princeton University

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Education

Princeton University, Fall 2017-Spring 2022

PhD in Mathematics

University of Texas at Austin, Fall 2013-Spring 2017

B.Sc. in Mathematics

Publications

Published Papers

- "A topological dynamical system with two different positive sofic entropies" (with L. Bowen and F. Lin), published in Trans. Amer. Math. Soc. Ser. B. Vol. 9, Iss. 2, pp. 35–98 (2022).

- "Some complexity results in the theory of normal numbers" (with S. Jackson and B. Mance), published in Canadian J. Math. Vol. 74, Iss. 1, pp. 170–198 (2022).

- "Descriptive complexity in cantor series" (with S. Jackson and B. Mance), published in J. Symb. Log. pp. 1–22 (2021).

- "Hotspot lemma for noncompact spaces" (with B. Mance), published in Math. Notes Vol 108, pp. 434–439 (2020).

- "Borel complexity of sets of normal numbers via generic points in subshifts with specification" (with S. Jackson, D. Kwietniak and B. Mance), published in Trans. Amer. Math. Soc. Vol 373, pp. 4561–4584 (2020).

- "Normality of different orders for Cantor series expansions" (with B. Mance), published in Nonlinearity Vol. 30, No. 10, pp. 3719–3742 (2017).

- "Normal number constructions for Cantor series with slowly growing bases" (with B. Mance and J. Vandehey), published in Czech. Math J. Vol. 66, Iss. 2, pp. 465–480 (2016).

- "Normality preserving operations for Cantor series expansions and associated fractals part II" (with B. Mance and J. Vandehey), published in New York J. Math. Vol. 21, pp. 1311–1326 (2015).

- "Normality preserving operations for Cantor series expansions and associated fractals part I" (with B. Mance), published in Illinois J. Math. Vol. 59, No. 3, pp. 531–543 (2015).

- "Normal equivalencies for eventually periodic basic sequences" (with B. Mance), published in Indag. Math. Vol. 26, No. 3, pp. 476–484 (2015).

- "On the Hausdorff dimension of some sets of numbers defined through the digits of their Q-Cantor series expansions" (with B. Mance), published in J. Frac. Geom. Vol. 3, Iss. 2, pp. 163–186 (2016).

- "Unexpected distribution phenomenon resulting from Cantor series expansions" (with B. Mance), published in Adv. Math. Vol. 279, pp. 372–404 (2015).

Presentations

- "Gibbs measures on sparse random graphs", Dissertation defense, Princeton University, Princeton, NJ, Spring 2022

- "Dynamical systems of algebraic origin", Graduate Student Seminar, Princeton University, Princeton, NJ, Fall 2019

- "$SL(n, \mathbb{R})$ has Property (T)", Geometric Group Theory MSRI Summer Graduate School, Oaxaca, Mexico, Summer 2019

- "Borel complexity of the set of generic points of dynamical systems that satisfy a weak specification property", Ergodic Theory & Statistical Mechanics Seminar, Princeton University, Princeton, NJ, Spring 2018

- "Entropy beyond actions of amenable groups", Graduate Student Seminar, Princeton University, Princeton, NJ, Spring 2018

- "Some complexity results in the theory of normal numbers", RTG Logic and Dynamics Seminar, University of North Texas, Denton, TX, Summer 2016

- "Some complexity results in the theory of normal numbers", AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, FL, Summer 2016

- "Some complexity results in the theory of normal numbers", Wrocław University of Technology, Summer 2016

- "Some complexity results in the theory of normal numbers", University of Warmia and Mazury in Olsztyn, Summer 2016

- "Some complexity results on sets related to normal numbers", University of Gdansk, Summer 2016

- "Some complexity results on sets related to normal numbers", University of Warsaw, Summer 2016

- "Some complexity results on sets related to normal numbers", Nicolaus Copernicus University, Torun, Summer 2016

- "Some complexity results on sets related to normal numbers", Seminarium z Układów Dynamicznych IMPAN, IMPAN, Summer 2016

- "Unexpected distribution phenomenon resulting from Cantor series expansions," Logic Seminar, California Institute of Technology, Fall 2015

- "Normality preserving operations for Cantor series expansions and associated fractals," Young Mathematicians Conference, Ohio State University, Summer 2015

- "Unexpected distribution phenomenon resulting from Cantor series expansions," Special Session on Fractal Geometry and Ergodic Theory, Spring Southeastern Sectional Meeting, University of Alabama in Huntsville, Spring 2015

- "The Hausdorff dimension of sets of numbers defined by their Q-Cantor series expansions," AMS Session on Number Theory II, Joint Mathematics Meetings, Spring 2015

- "Unexpected distribution phenomenon resulting from Cantor series expansions," Special Session on Connections in Number Theory, Fall Southeastern AMS Sectional Meeting, University of North Carolina at Greensboro, Fall 2014

- "Unexpected distribution phenomenon resulting from Cantor series expansions," Young Mathematicians Conference, Ohio State University, Summer 2014

- "Unexpected distribution phenomenon resulting from Cantor series expansions," RTG Research Conference: Logic, Dynamics, and Their Interactions II, University of North Texas, Summer 2014

- "Unexpected distribution phenomenon resulting from Cantor series expansions," RTG Logic and Dynamics Seminar, University of North Texas, Spring 2014

- "Ergodic properties of different types of series expansions," Informal Mathematics Research Problem Session, University of North Texas, Spring 2014

- "Uniform distribution in topological groups," Dynamical Systems Seminar, University of North Texas, Spring 2014 Uniform distribution in topological groups, Texas Undergraduate Topology and Geometry Conference, University of Texas at Austin, Spring 2014

- "Normal Numbers in a Variety of Number Systems," Normal Numbers Seminar, University of North Texas, Spring 2013 Comparing two notions of normality for Cantor series expansions, RTG Logic and Dynamics Seminar, University of North Texas, Spring 2013

- "Arithmetic progressions on Cantor-like sets," Informal Mathematics Research Problem Session, University of North Texas, Fall 2012

Conferences Attended

- Online Open Probability School, Online, Summer 2021

- Online Open Probability School, Online, Summer 2020

- Geometric Group Theory MSRI Summer Graduate School, Oaxaca, Mexico, Summer 2019

- Advances in Asymptotic Probability in Honor of Amir Dembo's 60th Birthday, Stanford, CA Winter 2019

- Current Trends in Dynamical Systems and the Mathematical Legacy of Rufus Bowen, Vancouver, Canada, Summer 2017

- AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, FL, Summer 2016

- New developments around x2 x3 conjecture, Cieplice, Poland, Summer 2016

- Young Mathematicians Conference, Columbus, OH, Summer 2015

- Spring Southeastern AMS Sectional Meeting, Huntsville, AL, Spring 2015

- Joint Mathematics Meetings, San Antonio, TX, Spring 2015

- Fall Southeastern AMS Sectional Meeting, Greensboro, North Carolina, Fall 2014

- Young Mathematicians Conference, Columbus, OH, Summer 2014

- RTG Research Conference: Logic, Dynamics, and Their Interactions II, Denton, TX, Summer 2014

- Texas Undergraduate Topology and Geometry Conference, Austin, TX, Spring 2014

- Logic, Dynamics and Their Interactions, with a Celebration of the Work of Dan Mauldin, Denton, TX, Summer 2012

Employment

- Preceptor (Princeton University), Feb 2022–May 2022

- Preceptor (Princeton University), Aug 2021–Jan 2022

- Instructor (Princeton University), Feb 2021–May 2021

- Instructor (Princeton University), Sep 2019–Jan 2020

- Undergraduate research assistant (UT Austin), Jul 2016–Sep 2016

- Undergraduate research assistant (UT Austin), Jan 2015 – Sep 2015

- Learning assistant (Differential Calculus for Science Majors), Sep 2014–Dec 2014

Teaching Experience

Princeton University

- Preceptor (course head Andrew Yarmola) for MAT 201 Multivariable Calculus, Sep 2019–Jan 2019

- Preceptor (course head Andrew Yarmola) for MAT 201 Multivariable Calculus, Sep 2019–Jan 2019

- Instructor (course head John Sheridan) for MAT 202 Linear Algebra with Applications, Sep 2019–Jan 2020

- Instructor (course head János Kollár) for MAT 201 Multivariable Calculus, Sep 2019–Jan 2020

- Tutor for MAT 215 Single Variable Analysis with an Introduction to Proofs, Sep 2018 – Jan 2019

Organizations/Activities

- Organizer of Graduate Student Seminar, Sep 2018–May 2018

- Mentoring M obius undergraduate mentoring program, Sep 2018–May 2018

- President of Math Club, Aug 2016–May 2017

- Directed Reading Program (Focus: joinings of dynamical systems), Fall 2016

- Events coordinator of Math Club, Aug 2015–May 2016

- President of Mathematics Undergraduate Student Talks Club, Spring 2014-present

- Directed Reading Program (Focus: ergodic number theory), Fall 2015

- Directed Reading Program (Focus: toric varieties), Spring 2014

Awards/Scholarships

- National Science Foundation Graduate Research Fellowship, Spring 2017

- Centennial Fellowship (Princeton University), Spring 2017

- College Scholar in College of Natural Sciences (with GPA of 3.94), Spring 2016

- Research Training Group in Logic and Dynamics Summer Undergraduate Scholarship (University of North Texas), Summer 2015

- Distinguished College Scholar in College of Natural Sciences (with GPA of 3.97), Spring 2015

- Unrestricted Endowed Presidential Scholarship (University of Texas at Austin), Spring 2015

- Research Training Group in Logic and Dynamics Summer Undergraduate Scholarship (University of North Texas), Summer 2014

- Research Training Group in Logic and Dynamics Summer Undergraduate Scholarship (University of North Texas), Summer 2013

- College of Natural Sciences Honors Scholarship, Spring 2013

- Research Training Group in Logic and Dynamics Summer Undergraduate Scholarship (University of North Texas), Summer 2012