
Curriculum Vitae:

Alp Uzman

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Personal & Contact Information

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Education

Ph.D. in Mathematics Pennsylvania State University, University Park Sep. 2016 – May 2023 (expected)
Advisor: Federico Rodríguez Hertz

B.Sc. in Mathematics, Summa Cum Laude Koç University, Istanbul Sep. 2011 – Jun. 2016

B.A. in Philosophy Koç University, Istanbul Sep. 2012 – Jun. 2016

Exchange Program University of California, Irvine Jan. 2015 – Jun. 2015

Lycee Diploma Kabataş Erkek Lisesi, Istanbul Sep. 2006 – Jun. 2011

Publications

Arithmeticity for Maximal Rank Positive Entropy Actions of \mathbb{R}^k [In Preparation] We extend an arithmeticity theorem of A. Katok and F. Rodríguez Hertz. They showed that [J. Mod. Dyn. 10 (2016), 135–172; MR3503686] given a C^{1+} maximal rank positive entropy action of \mathbb{Z}^k ($k \in \mathbb{Z}_{\geq 2}$), the manifold acted upon can be decomposed into finitely many components in such a way that the action restricted to any one of these components and the finite index subgroup fixing said component is measure theoretically isomorphic to an algebraic action, and the isomorphism has certain smoothness properties compatible with the dynamical foliations. We extend their machinery to locally free C^{1+} maximal rank positive entropy actions of \mathbb{R}^k ($k \in \mathbb{Z}_{\geq 2}$), and show that any such action comes from suspending an algebraic maximal rank positive entropy action of \mathbb{Z}^k up to a constant time change. This in particular solves a problem in a prequel paper of Katok and Rodríguez Hertz, joint with B. Kalinin [Ann. of Math. (2) 174 (2011), no. 1, 361–400; MR2811602].

Fried Average Entropy for Nilpotent Groups [In Preparation]

Pesin-Conditional Hölder Continuity of Subresonant Normal Forms of Contractions [In Preparation]

Honors & Scholarships

PSU Pettit Scholarship in Science Aug. 2016, Jan. 2017, Aug. 2017, Aug. 2018

KU 1st Ranking Graduate in the College of Sciences Jun. 2016

KU 2nd Ranking Graduate in the Department of Philosophy Jun. 2016

KU Exchange Program Grant Jan. 2015

TEV (Turkish Foundation of Education) Eclat Scholarship Sep. 2012 – Jun. 2015

KU Tuition Scholarship Sep. 2011 – Jun. 2016

Research Talks

PSU Semi-annual Workshop in Dynamical Systems and Related Topics Oct. 2021
Katok-Rodríguez Hertz Arithmeticity for Maximal Rank Positive Entropy Actions of \mathbb{R}^k

Poster Sessions

Simons Center Flexibility and Rigidity in Dynamical Systems Mar. 2021
Katok-Rodríguez Hertz Arithmeticity for Maximal Rank Positive Entropy Actions of \mathbb{R}^k

Expository Talks at the Dynamics Student Seminar¹

CC Geometry and Lyapunov Spectrum Rigidity, Part II	Apr. 2022
CC Geometry and Lyapunov Spectrum Rigidity	Apr. 2022
A Roadmap for Sub-Riemannian Dynamics	Feb. 2022
Smooth Ergodic Theory of Higher Rank Abelian Actions	Oct. 2021
Young's Explicit Examples of Nonuniformly Hyperbolic Cocycles that are not Uniformly Hyperbolic	Apr. 2021
Spaces of Anosov Diffeomorphisms	Nov. 2020
Some Remarks on the Definition of Hyperbolic Cascades	Oct. 2020
A Categorical Approach to Mixing Properties	Oct. 2020
Decay of Correlations in Random Dynamics	Aug. 2020
Property (FH), Property (T), and Harmonicity	Feb. 2020
First Cohomology with Representation Coefficients, Property (FH) and Property (T)	Jan. 2020
Ergodic Theory and Weil Measures for Foliations III	Nov. 2019
Ergodic Theory and Weil Measures for Foliations II	Oct. 2019
Ergodic Theory and Weil Measures for Foliations I	Oct. 2019
Basics of Topological Entropy	Oct. 2019
The Grigorchuk Group	Sept. 2019
The Problem of the Non-Integrability of the Center Distributions of Partially Hyperbolic Diffeomorphisms	Feb. 2019
A Criterion for the Simplicity of the Lyapunov Spectrum	Oct. 2018
Margulis' Normal Subgroup Theorem	Apr. 2018
Kazhdan Property (T)	Mar. 2018
Amenability	Feb. 2018
Moore Ergodicity Theorem	Jan. 2018
Quasi-periodic Schrödinger Operators	Dec. 2017
Yomdin's Theorem & Shub Entropy Conjecture	Nov. 2017
Random Dynamics	Sep. 2017

¹<https://math-cal.cloud.science.psu.edu/events/seminar/967>

Other Expository Talks

Student Geometric Functional Analysis Seminar Hofstadter's Butterfly	Nov. 2017
Working Seminar: Dynamics and its Working Tools Random Dynamics VI	Oct. 2017
WS Random Dynamics III	Sep. 2017

Service

Turkish Math Society DRP Turkey 2022, Mentor	Jul.-Aug. 2022
• Mentee: Kaan Çim (Koç University); Topic: Expansive Homeomorphisms on Surfaces	
PSU Dynamics Student Seminar, Leading Organizer	Fall 2017 – Spring 2021
• Coorganizers: Nawaf Alansari & Ignacio Correa	

Conferences & Workshops Attended

PSU Recent Advances in Dynamics, Geometry, and Number Theory	Aug. 2022
Simons Center Flexibility and rigidity in dynamical systems	Mar. 2022
PSU Semi-annual Workshop in Dynamical Systems and Related Topics	Oct. 2021, Sep. 2019, Oct. 2018, Oct. 2017, Oct. 2016
Polish Academy of Sciences 2020 Vision for Dynamics	Aug. 2019
Institute Des Hautes Études Scientifiques Aspects of Geometric Group Theory	Jul. 2019
University of Maryland Workshop on Dynamical Systems and Related Topics	Apr. 2019, Apr. 2018
University of Geneva Borel Seminar 2018: Topology and Dynamics in the Swiss Alps	Dec. 2018
Universidad de la República Workshop on Groups, Geometry and Dynamics	Jul. 2018
Institute for Pure & Applied Mathematics New Methods for Zimmer's Conjecture	Jan. 2018
PSU FRG Conference on Moduli of Sheaves and Strange Duality	Dec. 2017
University of British Columbia Current Trends in Dynamical Systems and the Mathematical Legacy of Rufus Bowen	Aug. 2017
Brigham Young University Dynamics Beyond Uniform Hyperbolicity 2017	Jun. 2017
University of Houston Houston Summer School on Dynamical Systems	May 2015, May 2017
KU & Philosophical Society of Turkey International Summer Program "Problems of Legal Philosophy in the Application of Law"	Jun. 2013

Teaching Experience

PSU Graduate Teaching Assistant

Grader MATH 435 (Basic Abstract Algebra)	Spring 2022
Instructor MATH 251 (Ordinary and Partial Differential Equations)	Fall 2021
Grader MATH 513 (Partial Differential Equations I)	
Instructor MATH 21 (College Algebra I) ($\times 2$)	Fall 2020
Instructor MATH 230 (Calculus and Vector Analysis) MATH 231 (Calculus of Several Variables)	Spring 2020
Instructor MATH 251	Fall 2019
Instructor MATH 251 ($\times 2$)	Fall 2018
Instructor MATH 36 (Insights into Mathematics) ($\times 2$)	Fall 2017
Instructor MATH 22 (College Algebra II)	Summer 2017
Instructor MATH 220 (Matrices)	Spring 2017
Assistant MATH 34 (Mathematics of Money)	Fall 2016

KU Work & Study Program (Selected)

Teaching Assistant MATH 203 (Multivariable Calculus)	Fall 2014
Assistant EQUR 121 (Symbolic Logic)	Spring 2014
Teaching Assistant EQUR 121	Fall 2013
Assistant MATH 103 (Introduction to Abstract Mathematics)	Fall 2013
Assistant MATH 204 (Differential Equations)	Spring 2013
Teaching Assistant MATH 107 (Linear Algebra)	Fall 2012
Assistant MATH 106 (Single Variable Calculus)	Fall 2012

KU KOLT (Koç Office of Learning & Teaching)

Tutor MATH 103 & PHIL 101 (Freshman Seminar)	Fall 2013
Tutor MATH 106 & MATH 203	Spring 2013
Tutor MATH 107	Fall 2012

Languages

Mothertongue Turkish

Proficient English

Beginner German