Curriculum Vitae

Alex Rutar

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Personal Information

Institution	University of St Andrews
Email	alex@rutar.org
Website	https://rutar.org
Citizenship	Canadian
Languages	English (native), French (reading)

Education

2020- **PhD in Mathematics**, ***University of St Andrews***, *St Andrews, UK*
Advisors: Jonathan Fraser and Kenneth Falconer

2016-2020 **Bachelor of Mathematics**, ***University of Waterloo***, *Waterloo, ON*
Major: Pure Mathematics, Minor: Combinatorics and Optimization
GPA: 95.7/100

Fall 2018 **Exchange**, ***Budapest Semesters in Mathematics***, *Budapest*
Magna Cum Laude
GPA: 4.0/4.0

2012-2016 **Secondary School**, ***Tempo School***, *Edmonton, AB*
Advanced Placement National Scholar
GPA: 99/100

Funding

2021	£15,609	**EPSRC Doctoral Funding**
2020	£15,285	**EPSRC Doctoral Funding**
2019	$4,500	**NSERC Undergraduate Research Award**
2018	$4,500	**NSERC Undergraduate Research Award**

Scholarships and Awards

2020	£73,000	**Hansel Scholarship**, *University of St Andrews*
2020	$1,000	**Pure Math Undergraduate Research Prize**, *University of Waterloo*
2016	$20,000	**W. T. Tutte National Scholarship**, *University of Waterloo*
2016	$5,000	**President's Scholarship**, *University of Waterloo*
2016	$2,500	**Rutherford Scholarship**, *Government of Alberta*
2016	$0	**Governor General Bronze**, *Tempo School*

Publications

1. A. Banaji, A. Rutar. Attainable forms of intermediate dimensions. *arXiv:2111.14678* (submitted).
2. A. Rutar. A Multifractal Decomposition for Self-similar Measures with Exact Overlaps. *arXiv:2104.06997* (submitted).
3. K. E. Hare, A. Rutar. Local Dimensions of Self-similar Measures Satisfying the Finite Neighbour Condition. *arXiv:2101.07400* (submitted).
4. A. Rutar. Geometric and Combinatorial Properties of Self-similar Multifractal Measures. *Ergodic Theory Dynam. Systems* (accepted).
5. K. E. Hare, K. G. Hare, A. Rutar. When the Weak Separation Condition implies the Generalized Finite Type Condition. *Proc. Amer. Math. Soc.* 149 (2021), 1555-1568.

Conferences and Presentations

Feb. 2022	**St Andrews Analysis Seminar**: *Attainable forms of intermediate dimensions*
Apr. 2021	**Junior Ergodic Theory Seminar**: *Self-similar measures with non-concave spectra and multifractal analysis*
Jan. 2021	**St Andrews Online Burn Meet**: *Analysis Group Intro Talk*
Oct. 2020	**St Andrews Analysis Seminar**: *Multifractal Analysis for Self-Similar Measures with Exact Overlaps*
Feb. 2020	**Waterloo Analysis Seminar**: *Geometric and Combinatorial Separation Conditions for Iterated Function Systems*
Jul. 2019	**CUMC 2019**: *An Algebraic Proof of Quadratic Reciprocity*
Jul. 2018	**CUMC 2018**: *Pisot–Vijayaraghavan numbers*

Other Skills

LaTeX	typesetting and package development
git	version control software
Python	software development, numerical computation, symbolic computation, graphical tools
Mathematica	functional programming, algorithm implementation for research papers
HTML and CSS	fundamentals of web development