

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, <i>University of St Andrews, St Andrews, UK</i> Advisors: Jonathan Fraser and Kenneth Falconer
2016-2020	Bachelor of Mathematics, <i>University of Waterloo, Waterloo, ON</i> Major: Pure Mathematics, Minor: Combinatorics and Optimization GPA: 95.7/100
Fall 2018	Exchange, <i>Budapest Semesters in Mathematics, Budapest</i> Magna Cum Laude GPA: 4.0/4.0
2012-2016	Secondary School, <i>Tempo School, Edmonton, AB</i> 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 , <i>University of St Andrews</i>
2020	\$1,000	Pure Math Undergraduate Research Prize , <i>University of Waterloo</i>
2016	\$20,000	W. T. Tutte National Scholarship , <i>University of Waterloo</i>
2016	\$5,000	President's Scholarship , <i>University of Waterloo</i>
2016	\$2,500	Rutherford Scholarship , <i>Government of Alberta</i>
2016	\$0	Governor General Bronze , <i>Tempo School</i>

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. [arXiv:2008.00197](#) (submitted).
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: <i>Attainable forms of intermediate dimensions</i>
Apr. 2021	Junior Ergodic Theory Seminar: <i>Self-similar measures with non-concave spectra and multifractal analysis</i>
Jan. 2021	St Andrews Online Burn Meet: <i>Analysis Group Intro Talk</i>
Oct. 2020	St Andrews Analysis Seminar: <i>Multifractal Analysis for Self-Similar Measures with Exact Overlaps</i>
Feb. 2020	Waterloo Analysis Seminar: <i>Geometric and Combinatorial Separation Conditions for Iterated Function Systems</i>
Jul. 2019	CUMC 2019: <i>An Algebraic Proof of Quadratic Reciprocity</i>
Jul. 2018	CUMC 2018: <i>Pisot–Vijayaraghavan numbers</i>

Other Skills

L ^A T _E X	typesetting and package development
Python	software development, numerical computation, symbolic computation, graphical tools
Mathematica	functional programming, algorithm implementation for research papers