CV

Han Yu

Warwick Mathematics Institute
University of Warwick
Coventry CV4 7AL
UK

EMAIL: Han.Yu.2@warwick.ac.uk
URL: https://math-HanYu.github.io

Current position

2022- Warwick Zeeman Lecturer, University of Warwick, UK

Previous positions

2019:2022 Research Associate, University of Cambridge/ Fellow at Corpus Christi College

Fellowship/Award

2021 Certificates of Commendation: EMS PhD Thesis Prizes
2020 LMS scheme 3 online lectures grant
2017 Research Fellow, Mittag-Leffler Institut, Sweden

Education

2016:2019 PhD in Pure Mathematics, University of St Andrews, UK
Thesis title: Assouad type dimensions and dimension spectra
Supervisors: Jonathan Fraser and Mike Todd
2015 PhD Candidate in Pure Mathematics, University of Manchester, UK
2012:2014 MSc in Theoretical and Mathematical Physics, Ludwig-Maximillian University, Munich, Germany
2008:2012 Undergraduate degree in Optical Engineering, Zhejiang University, China

Teaching Experience

Courses
MA426 Elliptic Curves, University of Warwick, 2022-2023 term 2
Graduate course: Fractal Geometry, University of Cambridge, Lent Term 2021
Corpus Bridging Course in mathematics, 2021
LMS scheme 3 online lecture series: Ergodic Theory, 2020

Conferences/Talks

2022.10 Mathematics Seminar, University of Chongqing, China
2022.10 Mathematics Seminar, Shenzhen Technology University, China
2022.05 Workshop on affine and overlapping iterated function systems 2022, Bristol, UK
2022.03 Colloquium, University of Nevada, Reno, US
2022.02 Warwick Number Theory seminar, UK
2021.10 University of St Andrews, Analysis Seminar.
2021.05 University of Vienna, Dynamics Seminar.
2021.04 New England Dynamics and Number Theory Seminar (online)
2021.04 Mathematics Seminar, University of Chongqing, China
2020.11 Diophantine approximation and dynamics on homogeneous spaces webnar(online).
2020.05 Ergodic Theory and Dynamical Systems Seminar, University of Warwick
2020.05 One day ergodic meeting(online), UK
2020.04 The Centre de recherches mathématiques, research seminar, Canada.
2019.10 Analysis Seminar, University of Manchester
2019.03 Number Theory and Dynamics Conference, Cambridge
2018.09 Fractal Geometry and Stochastics 6, international conference, Germany
2017.10 Mittag-Leffler Institut, research program, Sweden - Invited research presentation

Preprints and Publications

Publications (accepted):

33 (with D. Allen and S. Chow) Dyadic Approximation in the Middle-Third Cantor Set, (To appear)**Sel. Math. New Ser.**,arXiv:2005.09300

32 On the metric theory of multiplicative Diophantine approximation, (To appear)**J. d'Analyse Math.**, arXiv:2010.09004

31 (With K.Hambrook) Non-Salem sets in metric Diophantine approximation, (to appear) **International Mathematics Research Notices**, arXiv:2109.11332

30 Times two, three, five orbits on T^2, (To appear), **Adv. Math.**, arXiv:2009.00441

29 Bernoulli convolutions with Garsia parameters in $(1, \sqrt{2}]$ have continuous density functions, (To appear), **Proceedings of the American Mathematical Society**, arXiv:2108.01008

28 Fractal projections with an application in number theory, (To appear) **Ergodic Theory and Dynamical Systems**, arXiv:2004.05924

27 (with J. Fraser, L. Lee and I. Morris) L^q-spectra of self-affine measures: closed forms, counterexamples, and split binomial sums, **Nonlinearity** (2021) 34, 6331.

26 (with H-P Chen and J. Fraser) Dimensions of the popcorn graph, (To appear), **Proceedings of the American Mathematical Society**, arXiv:2007.08407

25 (With J. Fraser) Approximate arithmetic structure in large sets of integers (To appear) **Real Analysis Exchange**, arxiv:arXiv:1905.05034

24 (With Pablo Shmerkin) On sets containing a unit distance in every direction, (To appear), **Discrete Analysis**, arxiv:1912.01523

23 An improvement on Furstenberg's intersection problem, (To appear), **Transactions of the American mathematical Society**, arXiv:1811.11073

22 (With S. Burrell) Digit expansions of numbers in different bases, **Journal of Number theory**, 226, (2021), 284-306.

21 On the metric theory of inhomogeneous Diophantine approximation: An Erdős-Vaaler type result, **Journal of Number Theory**, 224, 2021, 243-273.

20 Additive properties of numbers with restricted digits, (To appear), **Algebra and Number Theory**, arXiv:2004.05926

19 (with P. Varjú) Fourier decay of self-similar measures and self-similar sets of uniqueness, (To appear), **Analysis and PDE**, arXiv:2004:09358

18 Bernoulli decomposition and arithmetical independence between sequences, **Ergodic Theory and Dynamical Systems**, 41(5), 2021, 1590-1600

17 Weak tangents and level sets of Takagi functions, **Monatshefte für Mathematik**, 192, (2020), 249–264.

16 (with J. Fraser, D. Howroyd and A. Käenmäki) On the Hausdorff dimension of microsets, **Proceedings of the American Mathematical Society**, 147(11), (2019), 4921–4936.

15 Multi-rotations on the unit circle, **Journal of Number Theory**, 200, (2019), 316-328.

14 On GILP's group theoretic approach to Falconer's distance problem, **Glasgow Journal of Mathematics**, doi.org/10.1017/S0017089520000373

13 Cube packings in Euclidean spaces, **Mathematika**, 67(2), (2021), 288-295.

12 (with J. Fraser and D. Howroyd) Dimension growth for iterated sumsets, **Mathematische Zeitschrift**, 293, (2019),1015–1042.

11 Dimensions of triangle sets, **Mathematika**, 65(2), (2019), 311-332.

10 A Fourier analytic approach to inhomogeneous Diophantine approximation, **Acta Arithmetica**, 190, (2019), 263-292.

9 (With J. Fraser, K.E.Hare, K.G.Hare and S.Troscheit) The Assouad spectrum and the quasi-Assouad dimension: a tale of two spectra, **Annales Academiae Scientiarum Fennicae Mathematica**, 44, (2019), 379-387.

8 Erdős Semi-groups, arithmetic progressions and Szemerédi's theorem, (To appear) **Real Analysis Exchange**, arXiv:1802.04137

7 (with J. Fraser) Assouad type spectra for some fractal families, **Indiana University Mathematics Journal**, 67(5), 2018, 2005-2043.

6 (with J. Fraser) New dimension spectra: finer information on scaling and homogeneity, **Advances in Mathematics**, 329, (2018), 273-328.

5 (with D. Howroyd) Assouad dimension of random processes, **Proceedings of the Edinburgh Mathematical Society**, 62(1), (2019), 281-290.

4 (with J. Fraser and K. Saito) Dimensions of sets which uniformly avoid arithmetic progressions, **International Mathematics Research Notices**, 2019(14), (2019), 4419–4430.

3 (with S. Baker) Root sets of polynomials and power series with finite choices of coefficients, **Computational methods and Function theory**, 18, (2017), 89-97

2 (with J. Fraser) Arithmetic patches, weak tangents, and dimension, **Bulletin of the London Mathematical Society**, 50, (2018), 85–95.

1 On generalized trigonometric functions and series of rational functions, **Journal of Number Theory**, 180, (2017), 512-532.

Preprints: available on arXiv

2 (With B. Bánáy and A. Käenmäki) Finer geometry of planar self-affine sets, arXiv:2107.00983

1 Rational points near self-similar sets, arXiv:2101.05910