

Curriculum Vitae for Mark Pollicott

Mark Pollicott , Professor of Mathematics, Department of Mathematics, Warwick University, Coventry CV4 7AL, United Kingdom	Date of Birth: <i>24 September, 1959</i> Place of Birth: <i>Nottingham, England</i> Nationalities: <i>British and Portuguese</i> Tel: +44 (0)24 7657 4830 Email: masdbl@warwick.ac.uk
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Professional History

University Education

1981	B.Sc. (First Class, Mathematics and Physics), Warwick University
1982	M.Sc. (Distinction, Mathematics), Warwick University
1984	Ph.D. (Mathematics), Warwick University

Permanent positions

1984-88	“New Blood” lecturer, Edinburgh University,
1988-92	Investigador Auxiliar, I.N.I.C. (Porto, Portugal)
1992-95	Lecturer, Warwick University
1995	Reader, Warwick University
1996 - 2004	Fielden Professor of Pure Mathematics, Manchester University
2004 -	Professor of Mathematics, Warwick University

Fellowships

1992-97	Royal Society University Research Fellow
1998-99	Royal Society Leverhulme Trust Senior Research Fellowship
2005	EU Marie Curie Professorship
2007-08	Royal Society Leverhulme Trust Senior Research Fellowship
2014-19	EPSRC Leadership Fellowship
2019-24	ERC Advanced Grant

Selected visiting positions

1984-85	Visiting Member, I.H.E.S. (Bures s/Yvette)
1987-88	Visiting Member, I.A.S. (Princeton)
1988 (Apr.-Aug.)	Visiting Member, M.S.R.I. (Berkeley)
1990 (Apr.-Jun.)	Associate Professor, CalTech. (Pasadena)
1992 (Feb.-Mar.)	Visiting professor, C.N.R.S: Institut Fourier (Grenoble)
2009 (Apr.)	Visiting researcher, C.N.R.S: ENS (Paris)
2010 (Feb.-Mar.)	Visiting member, Mittag-Leffler institute (Stockholm)
2012-13	Visiting Member, I.H.E.S. (Bures s/Yvette)
2013 (Mar.-Jun.)	Visiting member, Bernoulli Centre (Lausanne)
2014 (Apr.)	Visiting researcher, Paris-Sud (Orsay)
2015 (Jan.-Apr.)	Visiting Member, M.S.R.I. (Berkeley)
2017 (Sep.)	Visiting member, Mittag-Leffler institute (Stockholm)
2019 (Jul.-Dec.)	Jean Morlet Chair, CIRM-Luminy (Marsailles)

Editorial boards of research journals

Ergodic Theory & Dynamical Systems, 1997-2013 (Executive Editor 1994-97 and 2005-13)

Discrete and Continuous Dynamical Systems, 1995-2007

Journal of Fractal Geometry 2013- to date.

Proceedings of the Edinburgh Mathematical Society, 2014- to date.

Nonlinearity 2018- to date.

PhD Students and Post Doctoral Researchers

PhD STUDENTS

1. Prof. O. Jenkinson (Warwick, 1997)
2. Dr. C. Leech (Warwick, 1997)
3. Dr. Z. Kazim (Manchester, 1999)
4. Dr. V. Evanno (Manchester, 2000)
5. Dr. H. Xia (Manchester, 2002)
6. Dr. S. Shridan (Manchester, 2004)
7. Dr. T. Jordan (Manchester 2005)
8. Dr. D. Thompson (Warwick 2009)
9. Dr. A. Ferguson (Warwick 2011)
10. Dr. P. Felton (Warwick, 2012)
11. Dr. D. Kasigo (Warwick, 2015)
12. Dr. I. Cipriano (Warwick, 2015)
13. Dr. N. Jurga (Warwick, 2018)

RESEARCHERS

1. Dr. R. Nair (Edinburgh, 1995-98)
2. Dr. C. Walkden (Manchester, 1997-99)
3. Dr. P. Verovic (Manchester, 1998)
4. Dr. A. Windsor (Manchester, 2001-04)
5. Prof. K Simon (Warwick, 2005-)
6. Dr. T. Jordan (Warwick, 2005-08)
7. Dr I. Morris (Warwick, 2006-09)
8. Dr. K. Diaz-Ordaz (Warwick, 2009)
9. Dr A. Bis (Warwick, 2012-13)
10. Dr. M. Fraczek (Warwick, 2013-15)
11. Dr. J. Fraser (Warwick, 2013-14)
12. Dr. B. Barany (Warwick, 2014-15)
13. Dr. S. Baker (Warwick, 2016-19)
14. Dr. P. Vytnova (Warwick, 2016-19)

In addition, I have been an examiner on a large number of PhD and habilitation committees (including those for N. Anantharaman, M. Peigne, J.-F. Quint, B.Saussol).

Selected research grants

1985-88	SERC Research Grant	
1995	EU Marie Curie Chair	
1992-97	Royal Society Univ. Research Fellowship	
2007-08	Leverhulme Senior Research Fellowship	
1998-2000	EPSRC Research Grant	
2007-2012	EPSRC- TCC	£90k
1996-97	EU Research Grant	
2005-08	EPSRC Responsive mode	£139k
1995-99	INTAS-FSU Grant (Co-ordinator)	
2007-10	EPSRC Responsive mode	£251k
1998-99	Leverhulme Senior Research Fellowship	
2010-11	EPSRC Symposium Grant	£190k
2002-04	EPSRC Research Grant	£114k
2012-15	EPSRC Responsive mode	£265k
2005-06	EU Research Grant	£76k
2013-16	EPSRC Responsive mode	£268k
2014-19	EPSRC Leadership Fellowship	£934k
2019-24	ERC Advanced Grant	£1,600k

Research programmes (as co-organiser)

2000 (Jan.-Jun.)	Ergodic Theory, Geometric Rigidity and Number Theory (INI-Cambridge)
2010-11	Ergodic Theory and Dynamical Systems (Warwick)
2013 (Feb.-May)	Hyperbolic dynamics, large deviations and fluctuations (CIB-Lausanne)
2016 (Feb.-May)	Dimension and dynamics (ICERM-Brown)

In addition, I have held various other collaborative grants which facilitated international exchanges (e.g., Royal Society for Sweden, Hungary, etc.).

Selected administrative duties

1997-to date	Member of the EPSRC Mathematics College
1997-98 + 2001-04	Head of Pure Mathematics, Manchester University
2004-05	Chair of Departmental Board, Manchester University
2005-07 + 2009-10	Director of Postgraduate Studies, Warwick University
2015-to date	Member of LMS publication advisory committee

I have been served on professorial appointment committees (Leicester, Loughborough, Manchester, UEA, Uppsala, Warwick)

I have been an external member of NSF and AERES/CNRS evaluation committees (Brest, Orleans, Tours, Avignon).

I regularly referee for international journals (e.g., Annals of Mathematics, Inventiones Mathematicae, JAMS, IHES-Publ, Math.).

Teaching

I have routinely taught courses at all of the institutions I have worked, ranging from basic undergraduate courses (e.g., Analysis, complex analysis, projective geometry, metric spaces, etc.) to Masters level courses (e.g., Dynamical Systems, Ergodic Theory, Functional Analysis, Hyperbolic Geometry, Analytic Number Theory, etc.).

Research and publications

Brief summary of principle research contributions

1. The study of *resonances* (dubbed *Pollicott-Ruelle resonances* by nobel prize laureate I. Prigogine). My original work [72] was subsequently promoted, and further developed, by D. Ruelle. This has now become a standard tool in many aspects of dynamical systems, mathematical physics and spectral theory. ¹
2. The study of dynamical zeta functions for hyperbolic flows. I originally developed an approach based on the classical machinery of symbolic dynamics [72], [65],[66]. In 2013 this project was completed using the more modern techniques of anisotropic spaces of distributions (in a joint paper with Guilietti and Liverani [39]), thus solving a conjecture of Smale from 1967.
3. The introduction of a technique into the study of Hausdorff Dimension in Fractal Geomtry called *transversality*, in joint work with K. Simon [79]. ²
4. A numerical algorithm (dubbed the *Jenkinson-Pollicott algorithm* by Bourgain and Kontorovich) which is particularly successful at computing suitable numerical invariants (e.g., dimension, entropy, Lyapunov exponents, etc.) [43]. ³

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¹This provided the original framework for the well known work of Dolgopyat on exponential mixing [23]

²This was the principle ingredient, for example, in the famous solution of the Erdos conjecture for Bernoulli convolutions by Solomyak [99]

³This has had recent applications to number theory, via the work of Bourgain-Kontorovich and Huang [40], in relation to the Zaremba Conjecture, and Matheus-Moriera, in connection with the Lagrange and Markov spectra

Books (as author)

- I. *Zeta functions and closed orbits for hyperbolic systems* (with W. Parry), *Asterisque* (Societe Mathematique de France), vol. 187-188 (1990) 1-268.
- II. *Lectures on Pesin Theory and ergodic theory on manifolds*, *London Mathematical Society Lecture Notes Series* vol. 180, C.U.P., Cambridge, 1992.
- III. *Dynamical Systems and Ergodic Theory* (with M. Yuri), *London Mathematical Society Student Text Series*, vol. 40, C.U.P., Cambridge, 1998.
- IV. *Equilibrium states in negative curvature* (with F. Paulin and B. Schapira), *Asterisque* (Societe Mathematique de France) vol. 373 (2015) 1-281.
- V. *Open Conformal Systems and Perturbations of Transfer Operators* (with M.Urbanski), *Lecture Notes in Mathematics*, vol. 2206, Springer, Berlin, 2018
- VI. Asymptotic counting in conformal dynamical systems (with M.Urbanski), *Memoirs of the AMS* (to appear)

Books (as editor)

- A. Ergodic Theory of Z^d -actions, (with K. Schmidt), *London Mathematical Society Lecture Notes Series* vol. 228, C.U.P., Cambridge, 1996.
- B. Hyperbolic dynamics, large deviations and fluctuations, *Proc. Symp. in Pure Math. of the Amer. Math. Soc.* vol. 89, A.M.S., Providence, 2015 (with D.Dolgopyat, Y. Pesin and L. Stoyanov)

Research articles

- 1 An analogue of the prime number theorem for closed orbits of Axiom A flows (with W. Parry), *Annals of Mathematics*, 118 (1983) 573-591
2. A complex Ruelle-Perron-Frobenius theorem and two counterexamples, *Ergodic Theory and Dynamical Systems*, 4 (1984) 135-146
3. Asymptotic distribution of closed geodesics, *Israel Journal of Mathematics*, 52 (1985) 209-224
- 4 On the rate of mixing of Axiom A flows, *Inventiones Mathematicae*, 81 (1985) 413-426
5. The Chebotarov theorem for Galois coverings of Axiom A flows (with W. Parry), *Ergodic Theory and Dynamical Systems*, 6 (1986) 133-148
- 6 Meromorphic extensions of generalised zeta functions, *Inventiones Mathematicae*, 85 (1986) 147-164
7. A note on the uniform distribution of primes and closed orbits, *Israel Journal of Mathematics*, 55 (1986) 199-212
8. Distributions of closed geodesics on the modular surface and quadratic irrationals, *Bulletin Societe Mathematique de France*, 14 (1986) 431-446
9. Linking numbers for hyperbolic flows, *Journal of the London Mathematical Society*, 34 (1986) 185-192
- 10 Symbolic dynamics for Smale flows, *American Journal of Mathematics*, 109 (1987) 183-200

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11. Margulis distributions for Anosov flows, *Communications in Mathematical Physics*, 113 (1987) 137-154
 12. C^r rigidity theorems for hyperbolic flows, *Israel Journal of Mathematics*, 61 (1988) 14-28
 13. Analytic extensions of the zeta function for surfaces of variable negative curvature, *Journal of Differential Geometry*, 29 (1989) 699-709
 14. A thermodynamic approach to locally symmetric manifolds of higher rank, *Portugalia Mathematicae*, 46 (1989) 283-304
 15. Differentiability and analyticity of topological entropy for Anosov and geodesic flows (with A. Katok, G. Knieper and H. Weiss), *Inventiones Mathematicae*, 98 (1989) 581-597
 16. Differentiability and analyticity of topological entropy for Anosov and geodesic flows (with A. Katok, G. Knieper and H. Weiss), *Bulletin of the American Mathematical Society*, 22 (1990) 285-293
 17. C^r - rigidity for hyperbolic flows II, *Israel Journal of Mathematics*, 69 (1990) 351-360.
 18. Error terms in "Prime Orbit Theorems" for locally constant suspended flows, *Quarterly Journal of Mathematics*, 41 (1990) 313-323.
 19. The differential zeta-function for Axiom A attractors, *Annals of Mathematics*, 131 (1990) 331-354
 20. Kleinian groups, Laplacian on forms and currents at infinity, *Proceedings of the American Mathematical Society*, 110 (1990) 269-279
 21. Some applications of thermodynamic formalism to manifolds of constant negative curvature, *Advances in Mathematics*, 85 (1991) 161-192
 22. A note on the Artuso-Aurell-Cvitanovic approach to the Feigenbaum tangent operator, *Journal of Statistical Physics*, 62 (1991) 257-267
 23. Homology and closed geodesics in a compact negatively curved surface, *American Journal of Mathematics*, 113 (1991) 379-385
 24. Zeta functions and analyticity of metric entropy for Anosov systems *Israel Journal of Mathematics*, 76 (1991) 257-264
 25. Agmon's tauberian theorem and an analogue of Merten's theorem, *Proceedings of the American Mathematical Society*, 114 (1992) 1105-1105
 26. Rotation sets for homeomorphisms and homology, *Transactions of the American Mathematical Society*, 331 (1992) 881-894
 27. Exponential Mixing for the geodesic flow on hyperbolic three manifolds, *Journal of Statistical Physics*, 67 (1992) 667-673
 28. A note on asymptotics of perturbed expanding maps, *Portugalia Mathematicae*, 51 (1994) 395-404
 29. Rates of recurrence for Z^q and R^q extensions of subshifts of finite type (with R. Sharp), *Journal of the London Mathematical Society*, 49 (1994) 401-416
 30. Factorisation of the Lefschetz zeta functions and twisted periodic orbits, *Mathematische Zeitschrift*, 217 (1994) 109-120
 31. Derivatives of topological entropy for Anosov and geodesic flows, *Journal of Differential Geometry*, 39 (1994) 457-489
 32. The Picard group, closed geodesics and zeta functions, *Transactions of the American Mathematical Society*, 344 (1994) 857-872
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- 33 Orbit counting for some discrete groups acting on simply connected manifolds with negative curvature (with R. Sharp), *Inventiones Mathematicae*, 117 (1994) 275-302
 - 34 A new proof of a theorem of Margulis on geodesic arcs on negatively curved manifolds, *American Journal of Mathematics*, 117 (1995) 289-305
 35. The dimensions of some self affine limit sets in the plane (with H. Weiss), *Journal of Statistical Physics*, 77 (1994) 841-866
 - 36 The Hausdorff dimension of λ -expansions with deleted digits (with K. Simon), *Transactions of the American Mathematical Society*, 347 (1995) 967 - 983
 37. One dimensional maps via complex analysis in several variables, *Israel Journal of Mathematics*, 91 (1995) 317-339
 38. Large deviations, Gibbs measures, and closed orbits for hyperbolic flows, *Mathematische Zeitschrift*, 220 (1995) 219-230
 39. Distribution of closed geodesics for manifolds of non-positive curvature, *Discrete and Continuous Dynamical Systems*, 2 (1996) 153-161
 40. Large deviations and the distribution of pre-images of rational maps (with R. Sharp), *Communications in Mathematical Physics* 181 (1996) 733 - 739
 41. Growth series for the commutator subgroup (with R. Sharp), *Proceedings of the American Mathematical Society* , 124 (1996) 1329-1335
 42. Growth of periodic points and rotation vectors on surfaces (with R. Sharp), *Topology* 36 (1997) 765-774
 43. The circle problem for co-compact surfaces of variable negative curvature (with R. Sharp), *Monatshefte Mathematik* 123 (1997) 61-70
 - 44 A remarkable formula for the determinant of the Laplacian (with A.C. Rocha) *Inventiones Mathematicae*, 130 (1997) 399-414
 45. Poincaré series and zeta functions for surface group actions on R -trees (with R. Sharp), *Mathematische Zeitschrift*, 226 (1997) 335-347
 46. The Livsic cocycle equation for compact Lie group extensions of hyperbolic systems (with W. Parry), *Journal of the London Mathematical Society*, 56 (1997) 405-416
 47. Asymptotic auto-correlation for closed geodesics *Communications in Mathematical Physics*, 187 (1997) 341 - 355
 48. Generalized equilibrium states and behavior of average operators (with A. Fan), *Comptes rendus de l'Académie des sciences*, 327, Serie I (1998) 547-552
 - 49 Exponential error terms for growth functions on negatively curved surfaces, (with R. Sharp), *American Journal of Mathematics*, 120 (1998) 1019-1042
 50. An entropy for Z^2 -actions with finite entropy generators (with W. Geller), *Fundamenta Mathematica*, 157 (1998) 209-220
 51. Large Deviations for maps with indifferent fixed points (with R. Sharp and M. Yuri) *Nonlinearity*, 11 (1998), no. 4, 1173-1184
 52. Comparison theorems in hyperbolic geometry (with R. Sharp), *Transactions of the American Mathematical Society*, 350 (1998) 473-499.
 53. Multifractal analysis for the continued fraction Manneville-Pomeau transformations and applications to diophantine approximation (with H. Weiss), *Communications in Mathematical Physics*, 207 (1999) 145-171
 54. Measurable cocycle rigidity for some noncompact groups (with M. Nicol), *Bulletin of the London Mathematical Society* 31 (1999), no. 5, 592-600.
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55. Closed orbits and homology for C^2 -flows, *Discrete and Continuous Dynamical Systems*, 5 (1999) 529–534
 56. On the rate of mixing of Axiom A attracting flows and a conjecture of Ruelle, *Ergodic Theory and Dynamical Systems*, 19 (1999) 535–548
 57. Regularity of solutions to the measurable Livsic equation (with M. Yuri), *Transactions of the American Mathematical Society*, 351 (1999), 559-568
 58. Ergodic properties of the Bolyai-Renyi expansion (with O. Jenkinson) *Indagationes Mathematicae*, 11 (2000) 399–418
 59. Computing invariant densities and metric entropy (with O. Jenkinson), *Communications in Mathematical Physics*, 211 (2000) 687–703
 60. Non-homogeneous equilibrium states and convergence speeds of averaging operators (with Ai Fan), *Mathematical Proceedings of the Cambridge Philosophical Society* 129 (2000) 99–115
 61. Z^d -covers of horosphere foliations, *Discrete and Continuous Dynamical Systems*, 6 (2000) 147–154
 62. Rates of mixing for potentials of summable variation, *Transactions of the American Mathematical Society*, 352 (2000) 843–853.
 63. Livsic theorems for connected Lie groups (with C. Walkden), *Transactions of the American Mathematical Society*, 353 (2001) 2879-2895
 64. Error terms for closed orbits of hyperbolic flows (with R. Sharp), *Ergodic Theory and Dynamical Systems*, 21 (2001) 545-562
 65. Linear actions of free groups (with R. Sharp), *Annales de l'Institut Fourier*, 51 (2001) 131-150
 66. Poincaré series and comparison theorems for variable negative curvature (with R. Sharp), *American Mathematical Society Translations*, 202 (2001) 229–240
 67. Contraction in mean and transfer operators., *Dynamical Systems*, 16 (2001) 97–106
 68. Statistical properties of maps with indifferent periodic points (with M. Yuri), *Comm. Math. Phys.* 217 (2001) 503–520
 69. Zeta functions for certain multi-dimensional non-hyperbolic maps (with M. Yuri), *Non-linearity* 14 (2001) 1265-1278
 70. Livsic's theorem for semi-simple Lie groups (with M. Nicol), *Ergodic Theory and Dynamical Systems*, 21 (2001) 1501-1509
 71. Asymptotic expansions for closed orbits in homology classes (with R.Sharp) *Geometriae Dedicata* 87 (2001) 123-160
 72. Computing the dimension of dynamically defined sets (with O. Jenkinson), *Ergodic Theory and Dynamical Systems*, 21 (2001) 1429-1445
 73. Dynamical zeta functions , *Proceedings of the Symposium in Pure Mathematics*, 69 (2001) 409-427
 74. The dynamics of Schelling-type segregation models and a nonlinear graph Laplacian variational problem (with H. Weiss) *Advances in Applied Mathematics*, 27 (2001) 17–40
 75. Ergodicity of stable manifolds for nilpotent extensions of Anosov flows, *Discrete and Continuous Dynamical Systems*, 8 (2002) 599-604
 76. Calculating Hausdorff dimension of Julia sets and Kleinian limit sets (with O. Jenkinson), *American Journal of Mathematics*, 124(2002)495-545
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77. Invariance principles for interval maps with an indifferent fixed point (with R. Sharp), *Communications in Mathematical Physics*, 229 (2002) 337-346
 78. Ergodic properties of linear actions by (2×2) -matrices (with F. Ledrappier), *Duke Mathematical Journal*, 116 (2003) 353-388
 79. Stability of mixing rates for Axiom A attractors, *Nonlinearity*, 16 (2003) 567-578
 80. Hausdorff dimension and asymptotic cycles, *Transactions of the American Mathematical Society*, 355 (2003) 3241-3252.
 81. Time delay coordinates and polynomial mappings, *Advances in Mathematics*, 177 (2003) 280-296
 82. Stable ergodicity and frame flows (with K. Burns), *Geometriae Dedicata* 98 (2003) 189-210
 83. Free energy as a dynamical and geometric invariant (with H. Weiss), *Communications in Mathematical Physics*, 240 (2003) 457-482
 84. Livsic theorems, maximizing measures and the stable norm (with R. Sharp), *Dynamical Systems*, 19 (2004) 75-88
 85. Some remarks on the dynamics of the mixmaster universe (with H. Weiss) *Qualitative Theory of Dynamical Systems*, 4 (2004) 425-438
 86. Orthonormal expansions of invariant densities for expanding maps (with O. Jenkinson), *Advances in Mathematics*, 192 (2005) 1-34
 87. Transitivity of Euclidean extensions of Anosov diffeomorphisms (with V. Nitica), *Ergodic Theory and Dynamical Systems*, 25 (2005) 257-269
 88. Local Hölder regularity of densities and Livsic theorems for non-uniformly hyperbolic diffeomorphisms, *Discrete and Continuous Dynamical Systems*, 13 (2005) 1247-1256
 89. Distribution results for lattices in $SL(2, Q_p)$ (with F. Ledrappier), *Bulletin of the Brazilian Mathematical Society*, 36 (2005) 143-176
 90. Free energy as a geometric invariant (with H. Weiss) *Communications in Mathematical Physics*, 260 (2005), no. 2, 445-454
 91. Angular self-intersections for closed geodesics on surfaces *Proceedings of the American Mathematical Society*, (with R. Sharp) 134 (2006) 419-426
 92. Correlations for pairs of closed geodesics (with R. Sharp), *Inventiones Mathematicae*, 163 (2006) 1-24
 93. Properties of measures supported on flat Sierpinski carpet (with T. Jordan), *Ergodic Theory and Dynamical Systems*, 26 (2006) 739-754: [Addendum: Positive-measure self-similar sets without interior (with M. Csornyei, T. Jordan, D. Preiss and B. Solomyak) *Ergodic Theory and Dynamical Systems*, 26 (2006) 755-758]
 94. Skew products and Lie theory (with W. Parry), *Translations of the American Mathematical Society*, 217 (2006) 139-165
 95. Distribution of ergodic sums for hyperbolic maps (with R. Sharp), *Translations of the American Mathematical Society*, 217 (2006) 167-183
 96. Hausdorff dimension for randomly perturbed self affine attractors (with T. Jordan and K. Simon), *Communications in Mathematical Physics*, 270 (2007) 519-544
 97. Pair correlations of sequences in higher dimensions (with R. Nair), *Israel Journal of Mathematics*, 7 (2007), 219-238
 98. Distribution of orbits for Mobius groups, *Fields Institute Publications*, vol. 51, 1 (2007) 329-339
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99. Multifractal analysis and the variance of Gibbs measures (with T.Jordan), *Journal of the London Mathematical Society*, 76 (2007), no. 1, 57–72
 100. Stable ergodicity for partially hyperbolic attractors with negative central exponents (with K. Burns, D. Dolgopyat and Y. Pesin), *Journal of Modern Dynamics*, 2 (2008) 63-81
 101. Chebotarev-type theorems in homology classes(with R. Sharp), *Proceedings of the American Mathematical Society*, 35 (2007), no. 12, 3887–3894
 102. A dynamical approach to accelerating numerical integration with equidistributed points (with O. Jenkinson), *Proceedings of the Steklov Institute*, 256 (2007) 290–304
 103. Pseudo-Anosov foliations on periodic surfaces (with R. Sharp), *Topology and its Applications*, 154 (2007), no. 12, 2365–2375
 104. The Hausdorff dimension of measures for iterated function schemes which contract on average (with T. Jordan), *Discrete and Continuous Dynamical Systems*, 22 (2008) 235–246
 105. An analogue of Bauer’s Theorem for closed orbits of skew products (with W. Parry, posthumously), *Ergodic Theory and Dynamical Systems* , 28 (2008) 535-546
 106. Countable state shifts and the uniqueness of g-measures (with A.Johansson and A.Oberg), *American Journal of Mathematics*, 129 (2007), no. 6, 1501-1511
 107. An analogue of Artin reciprocity for closed orbits of skew products (with R. Sharp), *Ergodic Theory and Dynamical Systems* 28 (2008) 547-552
 108. How smooth is your wavelet? Wavelet regularity via thermodynamic formalism (with H. Weiss), *Communications in Mathematical Physics*, 281 (2008) 1–21.
 109. Periodic orbits and holonomy for hyperbolic flows, in Geometric and Probabilistic Structures in Dynamics, (with R. Sharp), *Contemporary Mathematics*, 469, 289-302, (2008)
 110. Limiting distributions for geodesics excursions on the modular surface, in Spectral analysis in geometry and number theory, *Contemp. Math.*, 484 (2009) 177–185
 111. Large deviations, fluctuations and shrinking intervals, (with R. Sharp) *Communications in Mathematical Physics*, 290 (2009) 321–334.
 112. Large deviations for intermittent maps, (with R. Sharp) *Nonlinearity* 22 (2009) 2079–2092.
 113. Ergodicity of the Geodesic Flow on Non-complete Negatively Curved Surfaces, *Asian Journal of Mathematics*, 13 (2009) 405-419
 114. Sets of non-differentiability for conjugacies between expanding interval maps (with T. Jordan, M. Kessebohmer, and B. Stratmann), *Fundamenta Mathematicae*, 206 (2009) 161-183
 115. Normal points for generic hyperbolic maps, *Fundamenta Mathematicae*, 20 (2009) 271-280
 116. Topological dynamics of the Weil-Petersson geodesic flow (with H.Weiss and S. Wolpert), *Advances in Mathematics* 223 (2010) 1225–1235
 - 117 Maximal Lyapunov exponents for random matrix products, *Inventiones Mathematicae*, Volume 181 (2010) 209-226
 118. Multifractal analysis of non-uniformly hyperbolic systems (with A. Johansson, T. Jordan and A.Oberg), *Israel Journal of Mathematics* , 177 (2010) 125-144
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- 119. Stationary measures for projective transformations: The Blackwell and Furstenberg measures (with B. Barany and K. Simon), *Journal of Statistical Physics* , 148 (2012) 393-421
 - 120. Unique Bernoulli g-measures (with A. Johansson and A. Oberg), *Journal of the European Mathematical Society* , 14 (2012) 1599-1615
 - 121. A. Ferguson and M. Pollicott, Escape Rates for Gibbs measures, *Ergodic Theory and Dynamical Systems* , 32 (2012) 961-988
 - 122. Geometry and dynamics for planar linkages (with M.L.S. Magalhaes), *Communications in Mathematical Physics*, 317 (2013) 615-634
 - 123. A note on the growth of periodic points for commuting toral automorphisms, *International Scholarly Research Notices in Geometry*, 2012 . Article no. 165808
 - 124. Correlations of length spectra for negatively curved manifolds (with R. Sharp), *Communications in Mathematical Physics* , 319 (2013) 515-533
 - 125. Ergodic theorems for actions of hyperbolic groups (with R.Sharp), *Proceedings of the American Mathematical Society*, 141 (2013) 1749-1757
 - 126. Anosov Flows and Dynamical Zeta Functions (with P. Giulietti and C. Liverani), *Annals of Mathematics*, 178 (2013) 687-773
 - 127. Length asymptotics in higher Teichmüller theory, (with R. Sharp), *Proceedings of the American Mathematical Society*, 142 (2014) 101-112.
 - 128. A Weil-Petersson type metric on spaces of metric graphs (with R. Sharp), *Geometria Dedicata*, 172 (2014), 229-244.
 - 129. Estimating Mahler measures using periodic points for the doubling map (with P. Felton), *Indagationes Mathematicae*, 25 (2014) 619-631.
 - 130. Analyticity of dimensions for hyperbolic surface diffeomorphisms, *Proceedings of the American Mathematical Society*, 143 (2015) 3465-3474.
 - 131. Micromeasure distributions and applications for conformally generated fractals (with J. Fraser), *Math. Proc. Cambridge Philos. Soc.* 159 (2015) 547-566.
 - 132. Estimating Singularity Dimension (with P. Vytnova), *Mathematical Proceedings of the Cambridge Philosophical Society*, 158 (2015) 223–238.
 - 133. Computing multifractal spectra (with D. Kagiso), *Dyn. Syst.* 30 (2015) 404-425.
 - 134. Logarithm laws for equilibrium states in negative curvature (with F. Paulin), *Communications in Mathematical Physics*, *Comm. Math. Phys.* 346 (2016), no. 1, 1-34.
 - 135. Weil-Petersson metrics, Manhattan curves and Hausdorff dimension (with R. Sharp), *Math. Z.* 282 (2016) 1007-1016.
 - 136. Linear response and periodic points (with P. Vytnova), *Nonlinearity*, 29 (2016) 3047-3066.
 - 137. Amenable covers for surfaces and growth of closed geodesics, *Advances in Mathematics*, 319 (2017), 599-609.
 - 138. Uniform scaling limits for ergodic measures, (with J. Fraser), *Journal of Fractal Geometry*, 4 (2017) 1-19.
 - 139. Ergodic Theory of Kusuoka measures, (with A. Oberg and A. Johansson), *Journal of Fractal Geometry*, 4 (2017) 185-214.
 - 140. Critical points for the Hausdorff Dimension of pairs of pants, (with P. Vytnova), *Groups, Geometry and Dynamics*, 11 (2017) 1497-1519.
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141. A note on the shrinking sector problem for surfaces of variable negative curvature, Tr. Mat. Inst. Steklova 297 (2017), *Poryadok i Khaos v Dinamicheskikh Sistemakh*, 281-291.
142. A Nonlinear Transfer Operator Theorem, *Journal of Statistical Physics*, 166 (2017) 516-524.
143. Controlling the statistical properties of expanding maps, (with S. Galatolo) *Nonlinearity*, 30 (2017) 2737-2751.
144. Rigorous Computation of Diffusion Coefficients for Expanding Maps, (with O. Jenkinson and P. Vytnova), *Journal of Statistical Physics*, 170 (2018), 221-253.
- 145 Rigorous effective bounds on the Hausdorff dimension of continued fraction Cantor sets: A hundred decimal digits for the dimension of E2, (with O. Jenkinson) *Advances in Mathematics*, 325 (2018), 87-115.
145. Stationary measures associated to analytic iterated function schemes, (with I. Cipriano) *Mathematische Nachrichten*, 291 (2018) 1049-1054
146. Joint spectral radius, sturmian measures, and the finiteness conjecture, (with O. Jenkinson), *Ergodic Theory and Dynamical Systems* 38 (2018) 3062–3100.
147. Zeros of the Selberg zeta function for non-compact surfaces (with P. Vytnova), *Geometriae Dedicata*, 201 (2019), 155–186.
148. Phase transitions in long-range Ising models and an optimal condition for factors of g-measures, (with A. Johansson and A. Oberg), *Ergodic Theory and Dynamical Systems*, 39 (2019), no. 5, 1317–1330.
149. Volume growth for infinite graphs and translation surfaces (with P. Colognese), *Contemporary Mathematics*, 744, (2020) 109–123,
150. Rigorous dimension estimates for Cantor sets arising in Zaremba theory, (with O. Jenkinson), *Contemporary Mathematics*, 744, (2020) 83-107

Summary of research publications

General Journal	Number of papers
Advances in Mathematics	6
American Journal of Mathematics	6
American Mathematical Society journals	15
Annals of Mathematics	3
Inventiones Mathematicae	7
London Mathematical Society journals	5
Specialist Journal	Number of papers
Communications in Mathematical Physics	14
Ergodic Theory and Dynamical Systems	15
Journal of Statistical Physics	4
Nonlinearity	3

Parameteric values for research publications (as of 28 May 2020)

Mathscinet	Google Scholar
Citations = 2253 (by 1155 authors)	Citations = 5782 h-index = 35 j10-index = 106

Surveys and articles in conference proceedings

1. Distributions at infinity for Riemann surfaces, in Proc. Conf. “Dynamical Systems and Ergodic Theory”, Stefan Banach Center, vol. 23, 1989
2. Closed Geodesics and Zeta functions, in Proc. Conf. “Ergodic theory and Hyperbolic Geometry”, O.U.P., Oxford, 1990, pp. 153-173
3. Notes on thermodynamic formalism for Anosov flows, in “Rencontres de theorie spectrale et geometrie”, Grenoble, 1991, pp.123-128
4. Symbolic dynamics and geodesic flows, in “Seminaire de theorie spectrale et geometrie”, Chambéry-Grenoble, 1991-1992, pp.1-20
5. The story of the solution of the Feigenbaum conjectures, Proceedings of the conference in honour of the 50th anniversary of the Centro de Matematica do Porto, pp.75-85
6. On the Ruelle-Tangerman theorem for zeta functions, Proceedings of the European Conference on Iteration Theory, Lisbon, 1991, pp.201-209
7. Infinitesimal Rigidity of Group Actions with Hyperbolic Generators, in *Dynamical Systems and Applications* World Scientific Series In Applicable Analysis 4, pp.589-599
8. Entropy and geodesic arcs on surfaces, Proceedings of the International conference on dynamical systems *Pitman research Notes in Mathematics* 362, 1996.
9. Stability of mixing for toral extensions (with W. Parry) *Proceedings of the Steklov Institute*, vol. 216, 1997, pp. 350-359
10. Notes on thermodynamic formalism for Anosov flows. *Rencontres de Theorie Spectrale et Geometrie* (Aussois, 1991), 123–128
11. Addendum to “Periodic orbits and dynamical spectra, by V. Baladi” (with D. Dolgopyat), *Ergodic Theory and Dynamical Systems*, 18 (1998), no. 2, 293–301.
12. Periodic orbits and zeta functions, in *Handbook of Dynamical Systems*, vol IA, Elsevier, (2002) 409-452
13. Entropy, exponents and invariant densities for hyperbolic systems: Dependence and computation (with O. Jenkinson), in *Modern Dynamical Systems and its Applications*(eds. M. Brin, B. Hasselblatt, Y. Pesin), C.U.P., Cambridge, 2004
14. Dynamical zeta functions and closed orbits for geodesic and hyperbolic flows. *Frontiers in number theory, physics, and geometry. I*, 379–398, Springer, Berlin, 2006.
15. The mathematical research of William Parry FRS, (with R. Sharp, S. Tuncel and P. Walters), *Ergodic Theory and Dynamical Systems*, 28 (2008) 321-337
16. Asymptotic vertex growth for graphs. *Spectrum and dynamics*, CRM Proc. Lecture Notes, 52, Amer. Math. Soc., Providence, RI, 2010, pp. 137-145
17. Statistics of matrix products in hyperbolic geometry (with R. Sharp), in *Dynamical Numbers: Interplay between Dynamical Systems and Number Theory*, *Contemporary Mathematics* 532, AMS, 2011, pp. 213-230

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18. Factors of Gibbs measures for full shifts (with T. Kempton), in *Entropy of Hidden Markov Processes and Connections to Dynamical Systems*, LMSLNM 385, CUP, 2011, pp. 246-257
 19. Computing entropy rates for hidden markov processes, in *Entropy of Hidden Markov Processes and Connections to Dynamical Systems*, LMSLNM 385, CUP, 2011, pp. 223-245.
 20. On the Hannay-Ozorio De Almeida Sum Formula (with R. Sharp), in *Dynamics, Games and Science II DYNA 2008*, Springer, 2011, pp. 575-590.
 21. Dynamical Zeta Functions, *Proceedings of the Leiden Numeration Conference 2010*, *Integers*, 11B (2011) A11
 22. Rates of Convergence for Linear Actions of Cocompact Lattices on the Complex Plane, *Proceedings of the Leiden Numeration Conference 2010*, *Integers*, 11B (2011) A12
 23. Periodic points, escape rates and escape measures (with O. Bandtlow and O. Jenkinson), "Ergodic theory, open dynamics, and coherent structures", *Springer Proceedings in Mathematics and Statistics*, Vol. 70 (2014) 41-57.
 24. Zeta functions for Anosov flows, *Proceedings of the International Congress of Mathematicians*, 2014.
 25. Apollonian circle packings. *Fractal geometry and stochastics V*, 121-142, *Progr. Probab.*, 70, Birkhäuser/Springer, Cham, 2015.
 26. Hyperbolic systems, zeta functions and other friends, *Banach Center Publications*, 115 (2018) 145-182
 27. Apollonius circle counting. *London Mathematical. Society Newsletter*. No. 478 (2018), 31-34.

Selected conferences and symposia

Conferences as organiser

European conference on Iteration Theory, Lisbon, Sept. 1991
 International Conference on Dynamical Systems, Porto, Aug. 1992.
 Stochastic analysis, Lisbon Jun. 1994.
 Ergodic Theory on Riemannian Manifolds, Warwick, Jun. 1995
Symposium on Ergodic Theory, Geometric Rigidity and Number Theory, INI (Cambridge), Jan-Jul. 2000, inc. workshops
 Ergodic Theory, Geometry and Lie Groups, Jan. 2000
 Ergodic Theory, Riemannian Geometry and Number Theory, Jul. 2000.
 Ergodic Theory of Z^d -actions, Warwick, Apr. 2000.
 International Conference on Dynamical Systems, Porto, May 2000.
 Dynamical Systems, ICMS (Edinburgh), Jul. 2000.
 Probabilistic Limit Laws for Dynamical Systems, ICMS (Edinburgh), Jun. 2005.
 Dynamical Systems and Statistical Mechanics, LMS Durham Symposium, Jul. 2006.
 Workshop on Ergodic Theory: Memorial meeting for William Parry, FRS, Warwick, 2007.
 Workshop on Ergodic Theory and Geometry, Manchester, Apr. 2008.

Symposium on Ergodic Theory & Dynamical Systems, Warwick, 2010-11, inc. workshops
Ergodic Theory & Dynamical Systems: 30th Anniversary of the journal, Sep. 2010
Recent advances in modern dynamics, Warwick, Dec. 2010
Ergodic Theory and Number Theory, Apr. 2011
Dimension Theory and Dynamical Systems, Apr. 2011
Workshop on Ergodic Theory & Dynamical Systems
Recent Advances in Modern Dynamics, Warwick, Dec. 2011
Ergodic Theory & Dynamical Systems: Perspectives and Prospects, Warwick, Apr. 2012.
Symposium on Hyperbolic dynamics, large deviations and fluctuations, CIB-Lausanne, Jan.-
Jun. 2013, including a workshop:
Limit Theorems for Dynamical Systems, Jun. 2013
Symposium on Dimension and Dynamics, ICERM (Brown, USA), Feb.-May 2016.
Ergodic Theory, Algorithms and Rigorous Computations, Warwick, April 2017.
Fifty years of Thermodynamic Formalism (Lorenz Centre-Leiden, Aug. 2018)
Thermodynamic Formalism (CIRM-Luminy, 1-12 July and 8-12 December 2019)

Conferences as member of Scientific committee

Anosov Systems and Modern Dynamics, Steklov Institute, Dec, 2016
Ergodic Theory, Algorithms and Rigorous Computations, Warwick, April 2017
Ecole d'Ete ZETAS 2018, Le Bourget-du-Lac, June 2018
Fractal Geometry and Stochastics 6, Bad Herrenalb (Germany), Sep. 2018
Dynamics, measures and dimensions, MPAN-BC Bedlewo, April 2019.

Conferences as invited speaker

I have been an invited speaker at over 200 international conferences, workshops and meetings, including: International Congress of Mathematicians, Seoul (2014).