Matthew Roberts

Personal Details

Department of Mathematical Sciences,
University of Bath,
Bath BA2 7AY, UK

E-mail: mattiroberts@gmail.com
Web: http://people.bath.ac.uk/mir20
Date of Birth: 17th December, 1983
Citizenship: UK

Research Interests

Branching processes, random graphs, noise sensitivity, parabolic Anderson model, mixing times, search trees, Markov chains, dynamical percolation, Brownian motion, random walks, martingales.

Employment

University of Bath, Bath, UK
Reader — From December 2017
Lecturer — April 2016 – November 2017
Prize Fellow in Probability — April 2013 – March 2016

University of Warwick, Coventry, UK
Research fellow — October 2012 – March 2013

McGill University, Montreal, Canada
CRM-ISM postdoctoral fellow — September 2011 – September 2012

Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany
Weierstrass research fellow — January – June 2011

LPMA, Université Pierre et Marie Curie (Paris VI), Paris, France
Postdoctoral researcher — January – December 2010

PhD students

Samuel Johnston, started October 2014, submitted October 2017
Alice Callegaro, started October 2017
Martin Prigent, started October 2017

Grants

Funding from Royal Society for a PhD studentship, Oct 2018 – Oct 2022 (£77,992 FEC)
Funding from EPSRC to hire a PGRA, Oct 2017 – Oct 2020 (£271,168 FEC)
Royal Society University Research Fellowship, Oct 2016 – Oct 2021 (£540,809 FEC)
EPSRC postdoctoral fellowship EP/K007440/1, Apr 2013 – Apr 2016 (£254,485 FEC)

Publications

S.C. Harris, S.G.G. Johnston and M.I. Roberts. The coalescent structure of continuous-time Galton-Watson trees. Preprint: Arxiv 1703.00299, 45 pages (2017).

L. Addario-Berry and M.I. Roberts. Robustness of mixing under rough isometry, via bottleneck sequences. Journal of Statistical Physics, 28 pages, to appear (2017+).

M.I. Roberts. The probability of unusually large components in the near-critical Erdős-Rényi graph. Advances in Applied Probability 50(1), 19 pages, to appear (2017+).

M.I. Roberts and B. Sengul. Exceptional times of the critical dynamical Erds-Rnyi graph. Annals of Applied Probability, 31 pages, to appear (2017+).

M. Ortgiese and M.I. Roberts. One-point localization for branching random walk in Pareto environment. Electronic Journal of Probability 22(6), pp. 1-20 (2017).

M. Ortgiese and M.I. Roberts. Scaling limit and ageing for branching random walk in Pareto environment. Annales de l'Institut Henri Poincaré, to appear (2017+).

J. Berestycki, É. Brunet, S.C. Harris and M.I. Roberts. Vanishing corrections for the position in a linear model of FKPP fronts. Communications in Mathematical Physics 349(3), pp. 857-893 (2017).

M. Ortgiese and M.I. Roberts. Intermittency for branching random walk in heavy tailed environment. Annals of Probability 44(3), pp. 2198-2263 (2016).

E. Candellero and M.I. Roberts. The number of ends of critical branching random walks. ALEA Latin American Journal of Probability and Statistics XII, pp. 55-67 (2015).

M.I. Roberts. Fine asymptotics for the consistent maximal displacement of branching Brownian motion. Electronic Journal of Probability 20(28), pp. 1-26 (2015).

J. Berestycki, É. Brunet, J.W. Harris, S.C. Harris and M.I. Roberts. Growth rates of the population in a branching Brownian motion with an inhomogeneous breeding potential. Stochastic Processes and their Applications 125(5), pp. 2096-2145 (2015).

S.C. Harris and M.I. Roberts. The many-to-few lemma and multiple spines. Annales de l'Institut Henri Poincaré 53(1), pp. 226-242 (2017).

S.C. Harris and M.I. Roberts. A strong law of large numbers for branching processes: almost sure spine events. Electronic Communications in Probability 19(28), pp. 1-10 (2014).

M.I. Roberts and L. Zhuo Zhao. Increasing paths in regular trees. Electronic Communications in Probability 18(87), pp. 1-10 (2013).

M.I. Roberts. A simple path to asymptotics for the frontier of a branching Brownian motion. Annals of Probability 41(5), pp. 3518-3541 (2013).

L. Döring and M.I. Roberts. Catalytic branching processes via spine techniques and renewal theory. Séminaire de Probabilités XLV, pp. 305-322 (2013).

M.I. Roberts. Almost sure asymptotics for the random binary search tree. DMTCS, proceedings of AofA'10, pp. 565-576 (2010).

S.C. Harris and M.I. Roberts. The unscaled paths of branching Brownian motion. Annales de l'Institut Henri Poincaré 48(2), pp. 579–608 (2012).

S.C. Harris and M.I. Roberts. Branching Brownian motion: almost sure growth along scaled paths. Séminaire de Probabilités XLIV, pp. 375-399 (2012).

S.C. Harris and M.I. Roberts. Measure changes with extinction. Statistics and Probability Letters 79 (8), pp. 1129-1133 (2009).

Education

PhD: University of Bath, graduated July 2010, supervised by Dr. Simon C. Harris.
MMath: University of Cambridge, graduated June 2006 (with distinction).
BA Mathematics: University of Cambridge, graduated June 2005 (first class).

Academic Service

Referee for Acta Applicandae Mathematicae, Annals of Applied Probability, Annals of Probability, Discrete Mathematics and Theoretical Computer Science, Electronic Journal of Probability, Journal of Applied Probability, Journal of Theoretical Probability, Latin American Journal of Probability and Mathematical Statistics, Physica D, Probability Theory and Related Fields, Stochastic Processes and their Applications.

Member of the EPSRC Peer Review Associate College.

Conferences organised

Summer school on Probabilistic and Statistical Methods for Networks, Berlin, 2017.
Fourth Bath-Paris Branching Structures meeting, Paris, 2016.
Third Bath-Paris Branching Structures meeting, Bath, 2014.
Local co-ordinator for the 2012 Montreal Spring School in Graph Theory.