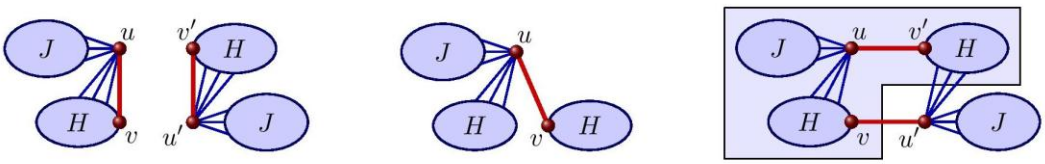
Department of Mathematics and Statistics

Faculty of Mathematics, Computing and Technology

The Open University

Mathematics Research Report

2014



Graphs used by Research Student David Bevan to determine the effect of cycle parity on the growth rate of a geometric grid class. From David Bevan, Growth rates of geometric grid classes of permutations. *Electronic Journal of Combinatorics*, 21(4): Paper 4.51, 2014.

Foreword by Robert Brignall (Director of Research)

Welcome to the 2014 Mathematics Research Report, which covers the Pure, Applied, History, and Mathematics Education groups in the Department of Mathematics and Statistics, in the Faculty of Mathematics, Computing and Technology, at The Open University. The Statistics group publishes its own annual report – http://statistics.open.ac.uk/2014_annual_report

The much-anticipated results of the Research Excellence Framework (REF) exercise were announced in December. A brief report on the Mathematics and Statistics REF result is provided by Phil Rippon below. I would like to thank Phil and the other members of the REF team in the Department for the hard work they put into our submission and for the commendable outcome.

In the Department we have maintained our expertise in Combinatorics, Analysis and Geometry, Theoretical and Mathematical Physics, History of Mathematics in the 19th and early 20th Century, and topics in Mathematics Education. The Applied Mathematics group was strengthened in October by the arrival of a new lecturer, Marc Pradas, whose research interests include soft condensed matter theory, fluid dynamics and stochastic processes.

In 2014 we bade farewell to two postdoctoral researchers – Nick Gill (who moved to Universidad de Costa Rica), and Nicholas Korpelainen (to the University of Derby). We also saw the retirement of Jeremy Gray, a world-leading historian of mathematics, though he remains part of the Department as an Emeritus Professor. A special two-day valedictory meeting, supported by the London Mathematical Society, The British Society for the History of Mathematics, and the International Commission on the History of Mathematics was a fitting tribute to his outstanding achievements.

The Department has a fine tradition of organising day meetings and conferences that attract national and international participation. In 2014 the Department received no fewer than six grants from the London Mathematical Society to support various one-day, two-day, or week-long conferences.

We are proud of the invaluable contribution made by our postgraduate research students and postdoctoral researchers to our vibrant research environment. Without prompting, the PhD students have organised numerous reading groups and informal, as well as gaining external funding from the London Mathematical Society to organise external conferences. There is now a real "buzz" in the Department, due in no small part to these talented career-young researchers. Our membership of the London Taught Course Centre (LTCC) continues: our students often spend Mondays in London attending courses and interacting with students from the other nine member institutions, and in 2014 staff from our Department contributed two courses to this programme.

A particular theme of 2014 has been celebrating the role of women in mathematics. The Department was delighted to be awarded a Bronze Athena SWAN award in May, and work on the action plan is now in full swing. June Barrow-Green, as well as appearing on BBC's In our Time, was awarded the Chandler Davis Prize for Expository Excellence for her outstanding contribution in the Mathematical Intelligencer. Meanwhile, Gwyneth Stallard continues to chair the London Mathematical Society's Women in Mathematics Committee, and her considerable and sustained work in advancing women's careers in mathematics led to her being awarded an OBE in the 2015 New Year's Honours list. Congratulations, Gwyneth!

REF Report (including Statistics) (by Phil Rippon, 2014 REF Coordinator)

The good REF news was that about 75% of the outputs we submitted were rated as 3* or 4* with the rest being 2*, which placed us in this respect about 2/3 of the way down the list of submissions in Mathematical Sciences – roughly where we expected to be. Environment was judged to be half 3* and half 2*, which reflects the vibrant nature of the Department in recent years, the research grant successes, conferences organised, PhD student activity, postdocs, visitors, etc, but would ideally have been a bit higher. On Impact we submitted three case studies, all of which we considered to be very strong, but unfortunately one was 'unclassified' (we have not been told which) for reasons to do with timing, and the other two were judged to be 3* and 2* (again we were not told which).

REF 2014 OU UoA 10	% 4*	% 3*	% 2*	% 1*	% U
Outputs	13.7	61.6	24.7	0	0
Impact	0	26.7	46.6	0	26.7
Environment	0	50	50	0	0

Membership of Mathematics Groups 2014, as at 31 December 2014

Head of Department
Professor Uwe Grimm

Professor
Prof Philip Rippon
Prof Jozef Širáň
Prof Gwyneth Stallard
Prof Michael Wilkinson

Emeritus Professor
Prof David Brannan
Prof Jeremy Gray
Prof Mike Grannell
Prof Terry Griggs
Prof John Mason
Prof Robin Wilson

Senior Lecturer
Dr Barbara Allen
Dr June Barrow-Green
Dr Mick Bromilow
Dr Robert Hasson
Dr Ben Mestel
Dr Toby O'Neil
Dr Kathleen Quinn
Dr Andrey Umerski
Dr Bridget Webb

Lecturer
Dr Robert Brignall
Mr Matthew Esplen
Mr Michael Hall (to May)
Mr Gerard Hayes
Dr Tim Lowe
Dr Marc Pradas
Dr Ian Short
Dr Paul Upton

Staff Tutor
Dr Silvia Barbina
Dr Katie Chicot
Ms Sally Crighton
Dr Martina Gibbons
Dr Gerry Golding
Mr Derek Goldrei
Ms Maggie Holland
Mrs Hilary Holmes
Dr Chris Hughes
Mr Brendan Quinn
Dr Hayley Ryder
Dr Claudi Thomas
Dr Gareth Williams

Visiting Research Fellow
Dr David Crowe
Dr Tony Forbes
Dr Fred Holroyd
Dr Penelope Lynch

Research Associate
Dr Nick Gill (to Feb)
Dr Nicholas Korpelainen (to Mar)
Dr Dave Sixsmith

Visiting Research Associate
Dr John Osborne

Office Manager
Mrs Tracy Johns

Secretary
Ms Sara Griffin

Long-term visitor
Visiting Professor Michael Baake
Visiting Senior Research Fellow
Dr Gerold Baier

Full-time research student
Mr David Bevan
Mr Lax Chan
Ms Rosanna Cretney
Mr Grahame Erskine
Miss Vasiliki Evdoridou
Mr Matthew Jacques
Mr David Marti Pete
Miss Mairi Walker

Part-time research student
Mr Valentin Fadeev
Mr John Grant
Mr Rob Lewis
Mr Steve Moon
Mr Paul Verschueren
Mr David Whitehouse

Visitors

Robert Brignall	Professor Daniel Kral (University of Warwick), 29–30 Jan Dr Anders Claesson (University of Strathclyde), 25–26 Feb Dr Vincent Vatter (University of Florida), 1–20 Jun
Terry S Griggs	Andrew Kozlik (Charles University, Prague), 27 Jan–2 Feb
Ben Mestel	Luke Adamson (University of Portsmouth), 19–21 Feb
Phil Rippon & Gwyneth Stallard	Xavier Jarques (University Barcelona), 3–5 Jun Anna Miriam Benini (University of Rome), 4–6 Nov Nuria Fagella (University of Barcelona), 2–5 Dec
Bridget S Webb	Professor Brett Stevens (Carleton University, Canada), 27 Jan–2 Feb Dr Daniel Horsley (Monash University, Australia), 18–26 Aug

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Prizes

June Barrow-Green Winner of the Chandler Davis Prize for Expository Excellence, awarded by the *Mathematical Intelligencer*, and funded by Springer Verlag.

Research degrees awarded

Mark Whinnett PhD for his thesis *Anaylsis of face specific visual processing in humans by applying Independent Components Analysis (ICA) to magnetoeoncephalographic (MEG) data*. Supervisors: Dr Robert Hasson and Professor Stephen Swithenby.

Publications

Albert, Michael H. and **Brignall, Robert** (2014). Enumerating indices of Schubert varieties defined by inclusions. Journal of Combinatorial Theory, Series A, 123(1) pp. 154–168.

Archdeacon, Dan; Bonnington, C. Paul and **Širáň, Jozef** (2014). Regular pinched maps. Australasian Journal of Combinatorics, 58(1) pp. 16–26.

Archdeacon, Dan; Conder, Marston and **Širáň, Jozef** (2014). Trinity symmetry and kaleidoscopic regular maps. Transactions of the American Mathematical Society, 366(8) pp. 4491–4512.

Archdeacon, Dan; **Griggs, Terry** and Psomas, Costas (2014). Representing graphs in Steiner triple systems. Graphs and Combinatorics, 30 pp. 255–266.

Baake, M.; **Grimm, U**. and Nilsson, J. (2014). Scaling of the Thue-Morse diffraction measure. Acta Physica Polonica A, 126(2) pp. 431–434.

Baake, Michael and **Grimm, Uwe** (2014). Squirals and beyond: substitution tilings with singular continuous spectrum. Ergodic Theory and Dynamical Systems, 34(4) pp. 1077–1102.

Bamberg, John; **Gill, Nick**; Hayes, Thomas P.; Helfgott, Harald A.; Seress, Akos and Spiga, Pablo (2014). Bounds on the diameter of Cayley graphs of the symmetric group. Journal of Algebraic Combinatorics, 40(1) pp. 1–22.

Barati, E.; Cinal, M.; Edwards, D. M. and **Umerski, A.** (2014). Gilbert damping in magnetic layered systems. Physical Review B, 90(1), article no. 014420.

Barrow-Green, June (2014). Cambridge mathematicians' responses to the first World War. In: Aubin, David and Goldstein, Catherine eds. 'The War of Guns and Mathematics': Mathematical Practices and Communities in France and Its Western Allies around World War I. History of Mathematics. Providence, RI: American Mathematical Society, pp. 59–124.

Beardon, Alan F. and **Short, Ian** (2014). A geometric representation of continued fractions. American Mathematical Monthly, 121(5) pp. 391–402.

Bevan, David (2014). Growth rates of geometric grid classes of permutations. Electronic Journal of Combinatorics, 21(4) article P4.51.

Brignall, Robert; Lozin, Vadim V. and Stacho, Juraj (2014). Bichain graphs: geometric model and universal graphs. Discrete Applied Mathematics (In press).

Calvert, Carol (2014). Developing a model and applications for probabilities of student success: a case study of predictive analytics. Open Learning: The Journal of Open, Distance and e-Learning , 29(2) 160-173.

Conder, Marston D.; Kwon, Young Soo and **Širáň, Jozef** (2014). On external symmetry groups of regular maps. In: Rigidity and Symmetry, October 2011, Toronto, Springer, pp. 87–96.

Cretney, Rosanna (2014). The origins of Euler's early work on continued fractions. Historia Mathematica, 41(2) pp. 139–156.

Danziger, Peter; Horsley, Daniel and **Webb, Bridget S**. (2014). Resolvability of infinite designs. Journal of Combinatorial Theory, Series A, 123(1) pp. 73–85.

Donovan, Diane M.; **Griggs, Terry S**; Lefevre, James G. and McCourt, Thomas A. (2014). Cyclic biembeddings of twofold triple systems. Annals of Combinatorics, 18(1) pp. 57–74.

Drápal, Aleš; **Griggs, Terry S** and Kozlik, Andrew R. (2014). Triple systems and binary operations. Discrete Mathematics, 325 pp. 1–11.

Forbes, A. D.; Griggs, T. S.; Psomas, C. and **Širáň, J.** (2014). Biembeddings of Steiner triple systems in orientable pseudosurfaces with one pinch point. Glasgow Mathematical Journal, 56(2) pp. 251–260.

Gill, Nick and Helfgott, Harald Andrés (2014). Growth in solvable subgroups of GLr(Z/pZ). Mathematische Annalen, 360(1-2) pp. 157–208.

Grannell, M. J. and Knor, M. (2014). Rigid Steiner triple systems obtained from projective triple systems. Journal of Combinatorial Designs, 22(7) pp. 279–290.

Grannell, Mike and McCourt, Thomas (2014). Doubly even orientable closed 2-cell embeddings of the complete graph. Electronic Journal of Combinatorics, 21(1), article no. P1.22.

Grimm, U. and Baake, M. (2014). Recent progress in mathematical diffraction. Acta Physica Polonica A, 146(2) pp. 474–478.

Johnston-Wilder, S.; **Lee, C.;** Garton, E. and Brindley, J. (2014). Developing coaches for mathematical resilience: level 2. In: 7th International Conference of Education, Research and Innovation (ICER 2014), 17-19 November 2014 , Seville, Spain, IATED Academy, pp. 4457–4465.

Knor, Martin and **Širáň, Jozef** (2014). Smallest vertex-transitive graphs of given degree and diameter. Journal of Graph Theory, 75(2) pp. 137–149.

Korpelainen, Nicholas; Lozin, Vadim V. and Mayhill, Colin (2014). Split permutation graphs. Graphs and Combinatorics, 30(3) pp. 633–646.

Korpelainen, Nicholas; Lozin, Vadim V. and Purcell, Christopher (2014). Dominating induced matchings in graphs without a skew star. Journal of Discrete Algorithms, 26 pp. 45–55.

Lewis, Robert (2014). The degree-diameter problem for circulant graphs of degree 8 and 9. Electronic Journal of Combinatorics, 21(4), article no. P4.50.

Loch, Birgit; **Jordan, Camilla R.; Lowe, Tim. W. and Mestel, Ben. D**. (2014). Do screencasts help to revise prerequisite mathematics? An investigation of student performance and perception. International Journal of Mathematical Education in Science and Technology, 45(2) pp. 256–268.

Mestel, Benjamin D. (2014). A contraction-mapping proof of Koenigs' theorem. Aequationes Mathematicae, 88(1-2) pp. 35–38.

Martí Pete, David (2014). A brief introduction to the history of nineteenth-century geometry. (Catalan) SCM Not. 36 pp. 31–35.

Pradas, M.; Tseluiko, D.; Ruyer-Quil, C. and Kalliadasis, S. (2014). Pulse dynamics in a power-law falling film. Journal of Fluid Mechanics, 747 pp. 460–480.

Rippon, Philip Jonathan and Stallard, Gwyneth Mary (2014). Regularity and fast escaping points of entire functions. International Mathematics Research Notices, 2014(19) pp. 5203–5229.

Roydhouse, Mark D.; **Pradas, Marc**; Al-Rifai, Noor; Azizi, Benjamin; Cao, Enhong; Kalliadasis, Serafim and Gavriilidis, Asterios (2014). Operating ranges of gas-liquid capillary microseparators: experiments and theory. Chemical Engineering Science , 114 30 - 39.

Short, Ian (2014). Maximal buttonings of trees. Discussiones Mathematicae Graph Theory, 34(2) pp. 415–420.

Sixsmith, D. J. (2014). A new characterisation of the Eremenko-Lyubich class. Journal d'Analyse Mathematique, 123(1) pp. 95–105.

Verschueren, Paul and Mestel, Ben D. (2014). Fixed points of composition sum operators. Journal of Difference Equations and Applications, 20(8) pp. 1152–1168.

Voßkuhle, Michel; Pumir, Alain; Lévêque, Emmanuel and **Wilkinson, Michael** (2014). Prevalence of the sling effect for enhancing collision rates in turbulent suspensions. Journal of Fluid Mechanics, 749 pp. 841–852.

Voßkuhle, Michel; Pumir, Alain; Lévêque, Emmanuel and **Wilkinson, Michael (**2014). Collision rate for suspensions at large Stokes numbers - comparing Navier-Stokes and synthetic turbulence. Journal of Turbulence, 16(1) pp. 15–25.

Walker, Mairi (2014). Conference review of the 2014 BSHM Research in Progress meeting, BSHM Bulletin 29(3) pp. 210-211

Wilkinson, Michael (2014). A test-tube model for rainfall. EPL, 106(4), article no. 40001.

Wilkinson, Michael (2014). Reply to comment by M. Rohloff et al. Europhysics Letters, 108, article no. 30006.

Wilkinson, Michael and Grant, John (2014). Triangular constellations in fractal measures. EPL, 107(5), article no. 50006.

Wilson, Robin (2014). In the footsteps of Euler and MacMahon: Combinatorics, the mathematics that counts', BSHM Bulletin 29 pp. 196–209.

Wilson, Robin (2014) Solving dotty problems: some puzzles in graph theory, Proceedings of the Recreational Mathematics Colloquium III (Azores, 2013) (ed. J. N. Silva), pp. 105–114.

Conference & workshop papers and posters given

David Bevan	A fast-growing subset of Av(1324), Permutation Patterns 2014, East Tennessee State University, July.
Grahame Erskine	Cayley graphs of dihedral groups, International Workshop On Optimal Network Topologies, Bratislava, July.
	The search for mixed Moore graphs of diameter 2, Graph Masters 12, Pilsen, November.
Vasiliki Evdoridou	Sufficient conditions for a point to be fast escaping, Perspectives of Modern Complex Analysis, Będlewo, July.
Jeremy Gray	19th century Galois theory, International Congress of Mathematicians Seoul, South Korea, August.
	Klein's Galois theory: underneath the icosahedron. Valediction to Jeremy Gray: a meeting to mark Jeremy Gray's retirement from the Open University, Milton Keynes, September 2014.

Uwe Grimm	Squirals and lattice substitutions with singular continuous spectrum (invited talk), at AMS Spring Eastern Sectional Meeting, University of Maryland, Baltimore County, Baltimore, USA, March.
	Aperiodic hexagon tilings and some of their relations (invited talk), at AMS Spring Eastern Sectional Meeting, University of Maryland, Baltimore County, Baltimore, USA, March.
	Aperiodic crystals and beyond (invited talk), at 23rd Congress and General Assembly of the International Union of Crystallography, Montréal, Canada, August.
	Binary bijective block substitutions in d dimensions, at Mini-Workshop Dynamical versus Diffraction Spectra in the Theory of Quasicrystals, Mathematisches Forschungsinstitut Oberwolfach, Germany,November-December.
Rob Lewis	The degree-diameter problem for circulant graphs of degree 8 and 9 at the 6th International Workshop on Network Topologies, Comenius University, Bratislava, Slovakia, June.
David Martí Pete	Annular itineraries for **C*,** Winter School on Kleinian Groups and Transcendental Dynamics, Bremen (Germany), April.
	Annular itineraries for **C***, Perspectives of Modern Complex Analysis, Będlewo (Poland), July.
	The escaping set of holomorphic self-maps of the punctured plane, RIMS Workshop on Complex Dynamics, Kyoto (Japan), December.
Ben Mestel	Optimal battery charge/discharge strategies for consumers and suppliers, Two-day Energy Research Conference, Open University, Milton Keynes, April.
John Osborne	Connectedness properties of the set of points where the iterates of an entire function are unbounded. Poster presentation at Perspectives of Modern Complex Analysis, Będlewo, Poland, July.
	Connectedness properties of the set of points where the iterates of an entire function are unbounded. Talk at the Holomorphic Dynamics LMS Scheme 3 Group meeting. December.
Marc Pradas	Stick-slip motion and hysteresis behaviour of droplets with dynamic volume variation. 67th Annual Meeting of the APS Division of Fluid Dynamics, San Francisco, November.
Phil Rippon	Course of lectures on transcendental dynamics, given with Gwyneth Stallard, at the Bremen Winter School on Kleinian Groups and Transcendental Dynamics, April.
	Escaping boundary points of Baker domains, at Perspectives of Modern Complex Analysis, Będlewo, Poland, July.
Ian Short	Continued fractions and discrete semigroups of Moebius transformations, One day conference on continued fractions and geometry of lattices, University of Liverpool, October.
Jozef Širáň	Covering constructions of extremal graphs of given degree and diameter or girth. Workshop on Algebraic, topological and complexity aspects of graph covers, Ostravice, Czech Rep., January (invited lecture).

	Large (and small) vertex-transitive graphs of given degree and diameter (and girth). International Comference on Combinatorics and Graphs, Beijing, China, August (invited plenary lecture).
	The degree-diameter problem for vertex-transitive graphs. Conference Three-In-One, Krakow, Poland, November (invited plenary lecture).
	Group-valued edge labellings of graphs, coverings, and applications in maps and extremal graphs. International Workshop on Graph Labellings, Krishnankoil, India, December (invited plenary lecture).
	Non-orientable regular maps of any given type. AMS Meeting, Baltimore, USA, January.
	Chiral regular maps of a given type, Joint IMU-AMS Meeting, Tel Aviv, Israel, June.
	Non-orientable regular maps of Euler characteristic equal to the negative of an odd prime power. Conference Embedded Graphs, St. Petersburg, Russia, October.
Gwyneth Stallard	Series of three lectures on transcendental dynamics, Bremen Winter School on Kleinian Groups and Transcendental Dynamics, Bremen, April (invited plenary speaker).
	The role of the escaping set in complex dynamics, Young Researchers in Mathematics, Warwick, July (keynote speaker).
	Eremenko's conjecture on the components of the escaping set, Perspectives of modern complex analysis, Będlewo, July.
Mairi Walker	Even Integer Continued Fractions: A Geometric Approach, Young Researchers in Mathematics, University of Warwick, July. (conference talk).
	Paths through the Hecke Graphs, SET For Britain poster competition final, House of Commons, Westminster, March. (poster).
Bridget S Webb	Homogeneous Steiner triple systems, Combinatorics 2014, Gaeta, Italy, June (invited plenary lecture).
Robin Wilson	A history of π, BSHM Conference on Counting and Calculation Oxford, June.
	Workshop on Early mathematics, European Summer School, ESU-7: History of Mathematics in Education, Copenhagen, Denmark, July.
	A century of graph theory, Lowell Beineke 75th Birthday Conference, Fort Wayne, Indiana, USA, October.
	History of Mathematics on stamps, Portuguese Mathematical Society (SPM) Conference, Obidos, Portugal, October.

Mathematics seminars hosted by the Department

In 2014, 19.4% of our seminar speakers were women.

Julia Yeomans (Oxford) *The Hydrodynamics of Active Matter*

Andrew Kozlik (Charles Universtiy Prague) *Flexible Latin directed triple systems*

Thomas Kecker (UCL) *Local and global branching of solutions of ODEs in the complex plane*

Ilies Zidane (Université Paul Sabatier) *Equidistribution of parabolic degenerate fixed points on the Zakeri curve*

Anders Claesson (Strathclyde) *The monotonicity of principal pattern classes with respect to inversions*

Andrew Archer (Loughborough) *Dynamical density functional theory: solidification of soft matter and why disordered solids or states with quasicrystaline order can form*

Peter Keevash (Oxford) *The existence of designs*

Jenny Nelson (Imperial) *Multi-scale modelling of molecular photovoltaic materials*

Oleg Karpenkov (Liverpool) *Global relations for toric singularities*

Matthieu Arfeux (Université de Toulouse) *Deligne-Mumford compactification and Berkovich spaces*

Ana Rodrigues (Exeter) *Double Standard Maps*

Alan McKane (Manchester) *Fast-mode elimination in stochastic metapopulation models*

William Holderbaum (Reading) *Control of Hamiltonian Systems on Matrix Lie Groups*

Andy Hone (Kent) *The Somos Sequence Saga*

Xavier Jarque (Universitat de Barcelona) *On Bishop's wandering domain example*

Konstantin Stefanov (Open University) *Research at the Centre for Electronic Imaging*

Vasiliki Evdoridou (Open University) *Sufficient conditions for a point to be fast escaping*

David Marti Pete (Open University) *Annular itineraries for C**

Grahame Erskine (Open University) *Large Graphs Of Diameter 2*

Dan Nicks (Nottingham) *Escape to infinity: as slow as you like or (almost) as fast as possible*

Ian Short (Open University) *Continued fractions and discrete semigroups of Mobius transformations*

Luke Adamson (Portsmouth) *On the self-similarity and box-counting dimension of strange non-chaotic attractors*

Marc Pradas (Open University) *Noise-induced complexity in multiscale systems*

Matthieu Astorg (Université de Toulouse) *Immersion of the dynamical Teichmüller space into the moduli space of rational maps*

Anna Benini (Centro di Ricerca Matematica Ennio di Giorgi) *Wandering domains and commuting functions*

Dave Sixsmith (Open University) *Maximally and non-maximally fast escaping points of transcendental entire functions*

Emilio Pierro (Birkbeck) *The Möbius function of the small Ree groups*

Fabian Essler (Oxford) *Quantum Quenches and Quantum Integrability*

Nick Watkins (Max Planck Institute for the Physics of Complex Systems, Dresden) *Mandelbrot's eyes and 1/f noise*

Nuria Fagella (Universitat de Barcelona) *Quasiconformal surgery in holomorphic dynamics*

Ben Fairbairn (Birkbeck) *Beauville surfaces, structures and groups*

Visits to other institutions

Robert Brignall	University of Florida, USA, March/April.
Katie Chicot	Visit to Leeds University every month to collaborate with Prof Truss.
Uwe Grimm	George Washington University Washington DC, USA, March/April
David Martí Pete	Visit to Prof. Mitsuhiro Shishikura at Kyoto University (Japan), December.
Bridget S Webb	University of South Wales, Treforest, January,
	University of Queensland, Australia (Ethel Raybould Visiting Fellow), December
Michael Wilkinson	Nordic Institute for Theoretical Physics, Stockholm, Sweden, June

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Conferences/meetings organised by members of the Department

Winter Combinatorics Meeting, Open University, 29 January 2014. Organisers: Robert Brignall, Kathleen Quinn, Bridget Webb and Jozef Širáň. wcm.open.ac.uk/

BSHM Research in Progress, The Queen's College, Oxford, 22 February. Organisers: Rosanna Cretney. Peter Neumann (Oxford), Jackie Stedall (Oxford).

Open Statistical Physics 2014, Open University, Milton Keynes, 26 March. Organisers: Michael Wilkinson, Uwe Grimm, Jim Hague (OU Physical Sciences), Paul Upton. osp.open.ac.uk/

Energy Research Two-Day Conference, Open University, Milton Keynes, 3–4 April. Organisers: Ben Mestel and William Nuttall (OU E&I). mcs.open.ac.uk/energymeeting/energymeeting2014/

SIGMAP 2014 - Symmetry In Graphs, Maps and Polytopes, International conference, West Malvern, 7–11 July. Organisers: Terry Griggs and Jozef Širáň. mcs.open.ac.uk/SIGMAP/

One Day Function Theory Meeting, De Morgan House, London. 1 September. Organiser: Dave Sixsmith.

A Mathematical War: How mathematicians responded to the First World War, London Mathematical Society, 6 September. Organiser: June Barrow-Green.

Valediction to Jeremy Gray, a meeting to mark Jeremy Gray's retirement from the Open University and to celebrate his many achievements, Mercure Parkside Hotel, 11–12 September. Organisers: June Barrow-Green, Robert Brignall. sites.google.com/site/grayvalediction/

Mini-Workshop Dynamical versus Diffraction Spectra in the Theory of Quasicrystals, Mathematisches Forschungsinstitut Oberwolfach, Germany, 30 November – 6 December. Organisers: Michael Baake, David Damanik, Uwe Grimm.

LMS Scheme 3 meeting on Holomorphic dynamics at the OU, 4 December. Organisers: Phil Rippon and Gwyneth Stallard, jointly with Imperial College and Liverpool. www.imperial.ac.uk/~svanstri/holo-uk.html

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Invited seminars and talks given

June Barrow-Green	GD Birkhoff and Poincaré's Last Geometric Theorem: Some Findings from the Harvard Archives. 'Valediction to Jeremy Gray', The Open University, September
	What did Cambridge mathematicians do during WW1? '"A Mathematical War": How mathematicians responded to the First World War', The London Mathematical Society
	British mathematicians and the Great War. 'Situating Science and Technology in the Great War', University of Kent. July
	Women Computers in the First World War. 'Counting and Calculation – a journey through practical mathematics', BSHM and Rewley House, Oxford. June
	Merely a speculation of the mind?' William Henry Fox Talbot and mathematics. The Three-Body problem. Two lectures at the American Mathematical Society/Mathematical Association of America Joint Meeting, Baltimore. January
	A Woman can win the victory, though she may not wear the wreath: women and mathematics in late 19th century Cambridge. Drake University (USA), Seminar for undergraduates, London. January
David Bevan	Tours on graphs and grid classes of permutations, University of Warwick, October
Robert Brignall	From permutations to graphs: infinite antichains and well-quasi-ordering. Royal Holloway, University of London, March
	From permutations to graphs: infinite antichains and well-quasi-ordering. University of Warwick, November
	From permutations to graphs: infinite antichains and well-quasi-ordering. University of Derby, December
	From permutations to graphs: infinite antichains and well-quasi-ordering. Combinatorics Workshop, LMS SW&W Regional Meeting, University of Plymouth, December
Vasiliki Evdoridou	Sufficient conditions for a point to be fast escaping, Holomorphic Dynamics meeting, The Open University, December
Uwe Grimm	Absolutely and singular continuous diffraction in aperiodic order, George Washington University, Washington DC, USA, April
	Recent progress in mathematical diffraction, TU Munich, Germany, November

	A century of crystallography, public lecture in the IoP/OU Open Lecture series, December
Tim Lowe	Mathematics at the Open University, Portsmouth University, June.
David Martí Pete	Escaping points of transcendental self-maps of $\mathbf{C}^*$, University of Warwick, January
	Escaping points of transcendental functions, Sussex Postgraduate Conference in Pure Mathematics, University of Sussex, Brighton, July
Jozef Širáň	Orientably-regular and regular maps of a given type, Royal Holloway, September
Dave Sixsmith	The size of the Julia set of functions outside the Eremenko-Lyubich class, Liverpool, October
Gwyneth Stallard	The structure of the escaping set in complex dynamics, Maynooth University, November
Mairi Walker	Strong Approximation in Fuchsian Groups: A Geometric Approach, Birkbeck College, University of London
Robin Wilson	Combinatorics: the mathematics that counts, Cambridge Science Festival, March
	Music and mathematics, The Common Denominator 2014, Leipzig, Germany, March
	Magic and Latin squares, British Science Festival, Birmingham, September

Editorial roles

June Barrow-Green	Member of Editorial Board of the AMS History of Mathematics book series (Editorial Board member).
	Historia Mathematica (Associate Editor).
	Member of Editorial Board of Histoires de géométries book series published by the Université Nancy Press (Editorial Board member).
	Scientiæ (Editorial Board member).
	BSHM Bulletin (Editorial Committee member).
	Revue d'histoire des Mathématiques (Comité de Lecteur)
Toby O'Neil	LMS Journals Editorial Adviser
Ian Short	Bulletin of the Irish Mathematical Society (Editorial Board member)
Gwyneth Stallard	Proceedings of the Edinburgh Mathematical Society (Subject Editor)

Grants awarded

June Barrow-Green	Support for Jeremy Gray Valediction Meeting, US$1500, International Commission for the History of Mathematics.
	Support for Jeremy Gray Valediction Meeting, £500, British Society for the History of Mathematics.
Robert Brignall	Support for Jeremy Gray Valediction Meeting, £2000, London Mathematical Society
Vasiliki Evdoridou	(with David Marti Pete) Postgraduate Conference in Complex Dynamics, LMS Scheme 8, £3969.40, London Mathematical Society.
David Martí Pete	Santander Formula Scholarship, £4200, Santander Universities UK and The Open University.
	(with Ian Short and Vasso Evdoridou) LMS Scheme 8 Postgraduate Research Conference Grant, £3969.40, London Mathematical Society.
Ben Mestel	Support for Smart Energy Research Conference, £950, London Mathematical Society
Marc Pradas	(Co-Investigator), Fluid processes in smart microengineered devices: Hydrodynamics and thermodynamics in microspace, £1,052,027, EPSRC (grant codes: EP/L027186/1, EP/L027232/1), Starting date: 01 November 2014, Ending date: 31 October 2018.
Jozef Širáň	Support for Symmetry in Graphs, Maps and Polytopes, £3840, London Mathematical Society.
Dave Sixsmith	Support for One Day Function Theory meeting, £1815, London Mathematical Society.
Gwyneth Stallard& Phil Rippon	with Lasse Rempe-Gillen (Liverpool and Sebastian van Strien (Imperial) Holomorphic Dynamics Scheme 3 research group, £1500, London Mathematical Society.
	Santander Mobility Scholarship to fund joint research with group in Barcelona, £1500 per year for 3 years, Santander
Bridget S Webb	LMS Scheme 2, Visit of Brett Stevens, £1310, London Mathematical Society.
	Overseas travel grant, Homogeneous Steiner triple systems, £50,934.83, EPSRC
	Ethel Raybould Visiting Fellow, AU$5000, University of Queensland

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Other Activities

June Barrow-Green	Vice-Chair, Executive Committee of the International Commission for the History of Mathematics Member of LMS Council and LMS Librarian. Member of BSHM Council.

	Outreach activities: When did British Mathematics become Cosmopolitan?' Panel Discussion with Leonid Parnovski and Eugene Shargorodsky, Russian Presence UK and Pushkin House, London, 18 November 2014 The fantastic story of Sofia Kovalevskaya, one of the first great women in maths. Women of the World Festival, South Bank Centre, London, 9 March 2014
Katie Chicot	Member of UKMT Council and Board of Directors by election. Chair of nominations committee. Member of British Science Association, Maths Committee. Elected to organising committee in 2004.
Rosanna Cretney	UKMT volunteer: member of national coordinator groups for Team Maths Challenges
Terry S Griggs	Member of Czech Government Expert Panel EP7 for the evaluation of Czech Mathematical Research.
Uwe Grimm	Chair of the Commission on Aperiodic Crystals of the International Union of Crystallography (IUCr)
David Martí Pete	Mentor for the UKMT Senior Mentoring Scheme. (with Mairi Walker) "Cryptic Challange" workshop at St. Paul's Catholic School, Milton Keynes, November.
Ben Mestel	Member of OU Energy Management Committee
Phil Rippon	Member of BMC Scientific Committee
Gwyneth Stallard	Chair of the LMS Women in Mathematics Committee Member of LMS Council Member of LMS Programme Committee LMS representative on the Athena Forum Member of the Good Practice Scheme Steering Group
Bridget S Webb	Elected Member of the British Combinatoral Committee Archivist for the British Combinatorial Committee
Robin Wilson	Retiring President of the British Society for the History of Mathematics (BSHM). Honorary Fellow of Gresham College, London Co-taught a course of lectures on the history of mathematics as Visiting Professor at the London School of Economics (to continue until 2016). Five-lecture tour of universities in Slovenia Four-lecture tour of universities in Denmark.

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