The London Mathematical Society is pleased to announce its

150th Anniversary Celebrations

(1865 – 2015)

We invite you to join us in celebrating this historic occasion.

Themes for the Anniversary

150 Years of the LMS and Mathematics
Mathematics as Part of our Culture
New ways of Communicating Mathematics

There will be an extended and varied programme of events throughout 2015 in celebration of the vitality of mathematics in the UK, looking back over 150 years of achievements and looking forward to exciting opportunities in mathematics for future generations.

For information and an up-to-date calendar, please visit www.lms.ac.uk/2015

To receive regular updates about events and lectures occurring during the 150th Anniversary Year, please sign up to the emailing list located at the above address.
LMS PRIZES 2014

The winners of the LMS Prizes for 2014 were announced at the Society meeting on 4 July 2014. The Society extends its congratulations to these winners, and its thanks to all the nominators, referees and members of the Prizes Committee for their contributions to the Committee’s work this year.

PROFESSOR MILES REID, FRS, of the University of Warwick, is awarded a Pólya Prize for his exceptionally creative work on higher dimensional algebraic geometry; in particular, on canonical singularities, the MacKay correspondence, the explicit study of 3-dimensional flips, the structure of Gorenstein rings, and for his inspired expositions.

PROFESSOR MARTIN HAIRER, FRS, of the University of Warwick, is awarded a Fröhlich Prize for his work on the interface between probability theory and partial differential equations; a body of work that is widely recognised as revolutionizing an entire field of research.

PROFESSOR CAROLINE SERIES, of the University of Warwick, is awarded a Senior Anne Bennett Prize in recognition of her leading contributions to hyperbolic geometry and symbolic dynamics, and of the major impact of her numerous initiatives towards the advancement of women in mathematics.

PROFESSOR DANIEL FREED, PROFESSOR MICHAEL HOPKINS and PROFESSOR CONSTANTIN TELERMAN are awarded a Senior Berwick Prize in recognition of their paper “Loop groups and twisted K-theory”, Journal of Topology, 4 (2011), 737-799. The paper sets out the foundations of twisted equivariant K-theory, and prepares the ground for the proof that the twisted equivariant K-theory of a compact Lie group is isomorphic to the Verlinde algebra of its loop group.

PROFESSOR CLÉMENT MOUHOT, of the University of Cambridge, is awarded a Whitehead Prize for fundamental mathematical contributions to the foundations of statistical mechanics and the Boltzmann equation.

PROFESSOR RUTH BAKER, of the University of Oxford, is awarded a Whitehead Prize for her outstanding contributions to the field of Mathematical Biology.

DR TOM COATES of Imperial College London is awarded a Whitehead Prize for his influential work in Gromov-Witten theory: the quantum Lefschetz theorem, the crepant resolution conjecture, the quantum cohomology of stacks, the higher genus theory of Calabi-Yau manifolds, and the Fanosearch program.

PROFESSOR DANIELA KUHN and PROFESSOR DERYK OSTHUS, of the University of Birmingham, are jointly awarded a Whitehead Prize for their many results in extremal graph theory and related areas. Several of their papers resolve long-standing open problems in the area.
CONGRATULATIONS

Congratulations to Professor Atwell R. Turquette (elected an LMS member 21 October 1971), who celebrates his 100th birthday on 14 July 2014.

Winton Professor for the Public Understanding of Risk, University of Cambridge, for services to statistics.

Commander of the Order of the British Empire (CBE)

Professor Denise Anne Lieveley, Professor of Statistics and Head of School of Social Science and Public Policy, King’s College London, for services to social science.

Office of the Order of the British Empire (OBE)

Dr Penelope Jane Davies, Senior Lecturer in Mathematics, University of Strathclyde, for services to mathematics.

QUEEN’S BIRTHDAY HONOURS 2014

No. 438 July 2014

MATHEMATICS POLICY ROUND-UP

The importance of engineering and the physical sciences to the health and life sciences

EPSRC invited an independent review group chaired by Professor Patrick Maxwell, Regius Professor of Physic and Head of the School of Clinical Medicine at the University of Cambridge, to explore the relationship between engineering and the physical sciences and the health and life sciences.

The report concluded that engineering and physical sciences research, including mathematics, statistics and computer science, has played a major role in advancing health and life sciences, for example in biomaterials, microscopy, DNA sequencing and magnetic resonance imaging.

Academic and industry figures including Lord Darzi (Imperial College London), Professor Sir John Bell (University of Oxford) and Professor Patrick Vallance (GlaxoSmithKline) discussed the increasing importance for the future of various areas of research - from big data and genomics, to new drug discovery techniques, to medical devices for surgery.

The review group made several recommendations to ensure that institutions effectively supported the increasing integration between disciplines. These included:

• proposals to encourage interdisciplinary working;
• the role for challenge-driven research;
• the need for doctoral training in interdisciplinary research;
• incorporating engineering and physical sciences into the UK strategy for life sciences;
• regular reviews of activity at the interface between disciplines.

EPSRC will be incorporating the report and its recommendations with key partners such as BBSRC, MRC, Cancer Research UK, the Wellcome Trust and other stakeholders over the coming months. The review is available at http://tinyurl.com/pbb3cnr.

Universities to contribute to new Science and Innovation Strategy for the UK

The four UK higher education funding bodies and Research Councils UK (RCUK) have written to the heads of all UK higher education institutions inviting input into the science and innovation strategy.

The Department for Business, Innovation and Skills (BIS) will be gathering a wide range of contributions on the development of a new strategy in May and June. The new strategy is due to be announced in autumn 2014. The funding bodies and RCUK are working in partnership to gather evidence from the higher education sector to inform their contributions to the strategy. Institutions were invited to provide views and any available evidence by 30 June 2014.

EPSRC SATs conference

The 2014 EPSRC SATs conference was held in May and brought together members of the Strategic Advisory Teams across the engineering and physical sciences to seek advice and share plans for the future.

EPSRC’s new CEO, Philip Nelson opened the conference, introducing himself and his early thinking on taking up the role. All SAT members, including new members joining from April, had the opportunity to input into the Monitoring Portfolio Evolution exercise as part of the Shaping Capability strategy and start to engage with the BIS consultation for a share of £1.1 billion capital investment.

A summary of outputs will be available at www.epsrc.ac.uk.

Report on the economic significance of the UK science base

“A new report commissioned by the Campaign for Science and Engineering (CaSE) provides crucial economic evidence to support claims that government can boost growth by investing in science and engineering research.”

The new report, The Economic Significance of the UK Science Base, extends previous studies by examining the contribution of the UK science base to our economy at the level of industry, universities and individual researchers. It shows that, in each case, public investment in science and engineering leads to economic growth.


SCHOOLS AND COLLEGES

Your Life maths and science campaign

The campaign was launched by the Chancellor of the Exchequer, the Rt. Hon. George Osborne MP, and the leading organisations and entrepreneurs taking part in it. The Chancellor was joined by Education Minister Liz Truss MP, Minister for Skills and Enterprise Matthew Hancock MP and MP, Financial Secretary to the Treasury and Minister for Women, Nicky Morgan MP.

Organisations such as Google, Arup, L’Oreal, Microsoft, Ford, BP, BskyB, Airbus, Balfour Beatty, Laing O’Rourke, IBM, Nestle, Samsung, the Science Museum and the Royal Academy...
LMS COUNCIL DIARY

9 May 2014
A personal view

We could see, as we gathered in the Hardy Room at De Morgan House, that the work of remodelling the garden was now complete. This should, when the weather permits, provide a useful and pleasant area for refreshment breaks at meetings held at DMH. As usual, the President impressed us with how many events he had attended on the Society’s behalf since the previous meeting; I counted at least five. It was worrying to hear from the meeting of presidents of European mathematical societies how downbeat the mood had generally been; the situation in Germany and in the UK seemed not to be so gloomy.

A very successful joint meeting between the LMS and the Royal Meteorological Society had involved half-hour talks. It was agreed that the Programme Committee should discuss whether this format should be used more often. From the meeting of Heads of Departments of Mathematical Sciences Terry reported concern that proposed changes in secondary schools could dramatically affect the numbers studying mathematics at universities.

Vice-President Ken Brown had depurized for the President at the Women in Mathematics Day. He found the ten-minute mathematic biographies with which the longer talks began fascinating and wondered whether this could be implemented more widely.

Before lunch Sarah Main, the Director of the Campaign for Science and Engineering (CaSE), gave a presentation entitled “How to persuade a politician — making the case for science investment”. The LMS is one of around 100 organisations which are members of CaSE. Sarah outlined the approach that CaSE has used, with some success, to influence politicians, a key aspect of which involved providing arguments and information to those to whom the politicians listen. CaSE is already planning a series of events to raise the profile of science and engineering in next year’s General Election.

Council received the final report from Mentoring African Research in Mathematics (MARM). Administered by the LMS, MARM was funded 2006–12 by the Leverhulme Trust and the Nuffield Foundation, and since then the IMU and the LMS have provided funds for four more mentoring partnerships while further sponsorship is sought. The aim of the programme was to combat the ‘brain drain’ of mathematicians from sub-Saharan Africa. The report concludes that, though it is too early to evaluate this long-term aim, MARM has achieved a definite impact on the development of mathematics in Africa.

Ken Brown reported on the work of the Research Policy Committee. Three data-gathering projects are coming to completion: a document on research funding in Mathematics, complementing last year’s report on the staffing of UK mathematics departments; a CMS document on admissions, graduations and employment destinations in the mathematical sciences; an LMS online database as a successor to the old Who’s Where in UK Mathematics directory.

Also in the Research Policy Committee’s remit is a recent request for views (and some evidence) for a review that the HEFCE is undertaking on the role of metrics in research assessment. Since the deadline for a reply falls before the next Council meeting, Council will have to approve a response by email.

Finally, it was reported that membership application forms were now online, and grant application forms will follow shortly.

Francis Clarke

LMS GRANT SCHEMES

Next Closing Date for Research Grant Applications: 15 September 2014

Applications are invited for the following grants:

Conferences (Scheme 1)
Grants of up to £7,000 are available to provide partial support for conferences held in the United Kingdom. This includes a maximum of £4,000 for principal speakers, £2,000 to support the attendance of research students who are studying at universities in the UK, and £1,000 to support the attendance of participants from Scheme 5 or former Soviet Union countries.

Celebrating New Appointments (Scheme 1)
Grants of up to £600 are available to provide partial support for meetings held in the United Kingdom to celebrate the new appointment of a lecturer at a UK university.

Postgraduate Research Conferences (Scheme 8)
Grants of up to £4,000 are available to provide partial support for meetings held in the United Kingdom, which are organised by and sponsored by an LMS committee, society or official subject association.

Visits to the UK (Scheme 2)
Grants of up to £1,500 are available to provide partial support for a visitor to the UK, who will give lectures in at least three separate institutions. Awards are made to the host towards the travel, accommodation and subsistence costs of the visitor.

Joint Research Groups (Scheme 3)
Grants of up to £2,000 are available to provide support to research groups of mathematicians to enable them to engage in collaborative activities through holding regular meetings (the maximum award is for four meetings held in the academic year). Groups should be made up of mathematicians who are working in at least three different locations and who have a common research interest.

Joint Research Groups (Scheme 3) — Renewal procedure
ALL renewal applications MUST be accompanied by a Financial and Academic Report for the previous year’s activities. Please note that full reports should always be submitted (‘light touch’ refers to the application procedure.
Grants of up to £2,000 are available to support a visit for collaborative research by a named mathematician from a country in Africa (or countries where mathematics is in a similar position) to the home base of the grant holder. Grants of up to £2,000 are available to support a visit for collaborative research by the grant holder to a country in Africa (or countries where mathematics is in a similar position). For full details of these grant schemes, and to download application forms, please visit the LMS website: www.lms.ac.uk/content/research-grants.

Applications received by 15 September 2014 will be considered at a meeting in October.

Applications should be submitted well in advance of the date of the event for which funding is requested.

Normally grants are not made for events which have already happened or where insufficient time has been allowed for processing of the application.

Queries regarding applications can be addressed to the Grants Administrators or the Programme Secretary (see below) who will be pleased to discuss proposals informally with potential applicants and give advice on the submission of an application.

Grants Administrators: Sylvia Daly and Elizabeth Fisher (tel: 020 7291 9971/3, email: grants@lms.ac.uk).

Programme Secretary: Rob Wilson (r.a.wilson@qmul.ac.uk).

OTHER LMS GRANTS AND FUNDING

Research Workshop Grants

The Society offers grants to support Research Workshops held in the UK. Requests for support (for travel and subsistence of participants, and reasonable associated costs) in the range of £1,000–£10,000 will be considered. The maximum award is £10,000, but a typical award is in the range of £3,000–£5,000. Applications for partial support of workshops with other sources of support will be considered. Applications should normally be submitted 12 months in advance of the proposed workshop. For further information visit: www.lms.ac.uk/content/research-workshops-grants.

Visit to Britain

Under this Scheme, applications may also be made by any mathematician in Britain wishing to host a visit by a young Russian postdoctoral mathematician who wishes to spend a few weeks in Britain giving a series of survey lectures on the work of their Russian seminar. The LMS is offering grants of up to £500 to meet travel costs, while the host should apply to the Russian Academy of Sciences for funding towards local expenses for accommodation and subsistence. Please contact Sylvia Daly (grants@lms.ac.uk) for information before contacting the Russian Academy of Sciences for funding. Applications to the LMS should include the following:

• A brief academic case for the visit, including a description of your current research interests, and an outline of your planned work during the visit (no more than one side of A4).
• A brief CV (no more than one side of A4).
• A brief budget.
• A letter of invitation from the head of the host institution in Russia, which must state explicitly that your accommodation and subsistence expenses will be met by them. This should include provisional dates for the visit.

Financial and academic reports will be required after the visit. In exceptional circumstances, applications may be considered from strong research students who are close to finishing their doctorates, and applications may be considered from strong academic cases for the visit (no more than one side of A4).
SOCIETY SEEKS INFORMATION FROM MATHEMATICAL SCIENCES IN HIGHER EDUCATION

Ken Brown
Vice President, LMS

Some current developments in UK Higher Education Institutions raise serious concerns for mathematicians. The issues involve complex, changes in the relationships between career development, the impact agenda, and external funding. While many of these changes affect academics in other fields, I will concentrate here on their particular effects on those working in the mathematical sciences. These effects are, broadly speaking, of two sorts: changes in our working conditions as individual mathematicians, and changes in the overall structure of academic mathematical science in the UK. Here are some examples of the sort of thing I have in mind: the first six predominantly concern individuals, at least initially, while the remainder are more structural:

1. award of sabbatical leave only to those winning Research Council (RC) grants;
2. allocation of PhD students only to those mathematicians from within the UK or abroad to the home base of the grant holder.

Please see the website for further details: www.lms.ac.uk/content/computer-science-small-grants-
scheme-7.

Childcare Supplementary Grants

Grants of up to £200 are available to parents working in mathematics to help with the costs of childcare when attending a conference or research meeting. The Society believes that all parents working in mathematics should be able to attend conferences and research meetings without being hindered by childcare costs. Institutions are expected to make provision for childcare costs and parents are encouraged to make enquiries. However, where this is not available, the Society administers a Childcare Supplementary Grants Scheme. Please see the website for further details: www.lms.ac.uk/content/childcare-supplementary-grants.

1. substantial external research income a necessary condition for promotion;
2. supervision of research student(s) a necessary condition for promotion;
3. substantial external research income a necessary condition for promotion;
4. substantial external research income a necessary condition for promotion;
5. move to “tenured” status dependent on winning substantial RC grant income; and
6. non-submission of an individual’s outputs to the REF influenced by the international-published outputs.

Regarding point 8, for instance, areas of research focus and consequently of appointments must change over time if our subject is to remain vital. The increased focus on impact in the UK is part of a world-wide trend which we as mathematical scientists cannot and should not try to oppose – rather we must continue with and redouble our efforts to make funders’ definitions of and ways of measuring impact more in tune with the full range of our activities. We must also continue to emphasise the huge long-term impact of the mathematical sciences, as catalogued for example in the Deloitte report; and we should develop a portfolio of examples of the profound influence of the mathematical sciences on all aspects of our lives – one excellent example is in the USA’s National Research Council report "The Mathematical Sciences in 2025".

On point 4, we all know that RC grant income in the mathematical sciences is very low compared to many other STEM subjects. This is in part because the main costs of most of the research in the mathematical sciences has been for people and for time, costs which, though very significant, have in the past been adequately covered for many of us in the UK by the dual support system of funding. Perhaps also it is the case that what we do has historically been undervalued, thanks to long lag times for impact, but also – let’s be honest – thanks to sometimes relaxed attitude in the past to the need to make the case for more funding. The LMS, both on its own and in conjunction with the Council for the Mathematical Sciences, has been working hard to make these cases and to assemble relevant data, for grant inclusion and more broadly: for example, the Deloitte report, produced with CMS backing last year, includes winning substantial RC grant income, and supervising a PhD student to completion. The consequences of failing to achieve these targets in the specified time frame are left unclear.

So, why am I writing this article? The first and very important reason is to gather information. At the moment our community has no way of knowing how widespread are these and similar changes.

Those directly affected can feel isolated, powerless and undervalued. I am therefore inviting two sorts of response. First, I will very much welcome information about particular cases along the lines of those listed above. It will be equally valuable to learn of examples of good practice with regard to these issues. Naturally, I’ll treat all such communications with the utmost confidence, but will hope to share what global data I can gather; in due course.

More generally, I will be good to hear other views on the issues raised here: perhaps, for example, some of these changes should be welcomed? Most importantly, we need to consider what we as a community should be doing in the face of these developments. What should the LMS be doing?

Comments can be sent for inclusion in the next Newsletter, to newsletter@lms.ac.uk, or in the case of more confidential material, sent to me at Ken.Brown@glasgow.ac.uk. Do also feel free to make use of the LMS blog, at http://discuss.
maths.lms.ac.uk/members/, where a copy of this article has been placed.

1 Available as a free download at www.nap.edu/catalog.php?record_id=15269
2 http://tinyurl.com/p3y5u3f
3 www.lms.ac.uk/policy/statistics-mathematics
Journals from the London Mathematical Society

Mathematika
Publishes both pure and applied mathematical articles since its founding by Harold Davenport in the 1950s.
journals.cambridge.org/mtk

Compositio Mathematica
Publishes first-class research papers that traditionally focus on the mainstream of pure mathematics.
journals.cambridge.org/com

LMS SPITALFIELDS DAY
ADVANCES IN THE MATHEMATICS OF WATER WAVES
Wednesday 23 July 2014
Isaac Newton Institute for Mathematical Sciences
20 Clarkson Road, Cambridge CB3 0EH

As part of the programme *Theory of Water Waves* (14 July - 8 August 2014) the Isaac Newton Institute will be holding an LMS Spitalfields Day on 23 July 2014. This special event consists of four lectures surveying the state of the art in selected areas of the rigorous mathematical theory of water waves. The lectures will be accessible to a general mathematical audience, including graduate students.

Speakers are:

- **Mark Groves** (Loughborough, Saarland)  
  *Three-dimensional water waves*
- **Guido Schneider** (Stuttgart)  
  *Validity and non-validity of the NLS approximation for the water wave problem - recent developments and open problems*
- **Steve Shkoller** (Oxford)  
  *Interface singularities for the Euler equations*
- **Eugene Varvaruca** (Reading)  
  *Singularities of steady free surface water flows*

Register by 13 July 2014 (www.newton.ac.uk/cgi/ wsapply?CODE=TWWW02). There are limited funds available to assist in the travel cost of research students. If you require support towards travel, advise an estimated amount in the space provided on the online registration form.

The organiser is Professor Mark Groves (M.D.Groves@lboro.ac.uk).
The London Mathematical Society is pleased to announce the list of successful applicants to its second round of Undergraduate Research Bursaries. For the 2014 round 20 awards were made to students from 16 different institutions to undertake a research project alongside a research supervisor. The purpose of the Bursaries is to enable undergraduates with research potential to experience research and to encourage them to consider a career in scientific research.

Institution | Research Supervisor | Student | Research
---|---|---|---
University of Bath | Professor David Calderbank | Charles Craven | Functoriality in geometry and representation theory
University of Bath | Professor Peter Morters | Tom Crawley | Spread of rumours in preferential attachment networks
University of Belfast | Dr Martin Matthieu | Victoria Coome | Spectral graph theory beyond finite dimensions
University of Birmingham | Dr Richard Mycroft | Candida Bowtell | Investigating external set systems
University of Bristol | Professor Guy Nason | Lewis Rendall | A new test of stationarity for network time series
University of Bristol | Dr Nina Snaithe | Patrick Morris | Modelling elliptic curves with random matrix theory
University of Cambridge | Dr Thomas Montenegro-Johnson | David Baker | Dynamics of cilia observed in developing zebrafish
Cardiff University | Dr Andreas Artemiou | Luke Smallman | Dimension reduction with reweighted large margin classifiers
Cardiff University | Dr Jonathan Gillard | Holly Butcher | Low rank approximations of matrices, with a view towards statistical applications
University of Durham | Dr Athanasios Bouganis | Francesca Bianchi | Special values of L-functions attached to Hecke characters
University of East Anglia | Dr Robert Gray | David Reed | The directed geometry of finitely generated amenable semigroups
University of East Anglia | Professor Shaun Stevens | Elaine Barker | Counting cuspidal representations of finite and p-adic reductive groups
University of Glasgow | Dr Christina Cobbold | Remus Stana | Can organisms with a non-mobile life-stage keep pace with climate change?
Imperial College London | Professor Alessio Corti | Ben Wormleighton | Hilbert functions of orbifold del Pezzo surfaces
University of Nottingham | Dr Alexander Ossipov | Thomas Cope | Quantum wavefunctions in disordered topological insulators
University of Oxford | Dr Tobias Dyckerhoff | Lothar Krapp | Unoriented surfaces, Moebius graphs and outer space
University of Portsmouth | Dr James Burridge | Steven Kenney | Power laws and power law crossover in cascading systems
Royal Holloway, University of London | Dr Martin Widmer | Sahana Seetharaman | Counting points of bounded height in certain infinite extensions
University of Strathclyde | Dr Michael Grinfeld | Maciej Buze | Non-local models of phase transitions
University of Surrey | Dr Bin Cheng | Timothy Burchell | Accuracy and validation of barotropic fluid models on a sphere

LMS NEWSLETTER

LONDON MATHEMATICAL SOCIETY
MEETING AND RECEPTION
Tuesday 19 August 2014
International Congress of Mathematicians
Seoul, South Korea

The London Mathematical Society will be holding a meeting and reception during the next International Congress of Mathematicians, in Seoul from 13-21 August 2014.

Jean-Pierre Bourguignon will give a talk on The life of a mathematician has several sides.

The Society meeting and reception will be held from 5.00 pm – 9.00 pm on Tuesday 19 August. LMS members will have the opportunity to sign the Members’ Book, which dates back to 1865.

LMS members who wish to attend the meeting and reception should apply for numbers are limited by the capacity of the room.

The LMS will also host a stand during the ICM and would like to invite members to drop by, see the latest publications and meet the LMS Officers and staff.
OPEN HOUSE 2014

The LMS will once again open its doors to the public as part of this year’s Open House London event. De Morgan House will be open on Sunday 21 September from 11am until 4 pm. Visitors will be given a tour of the building and there will also be a presentation on mathematics through the years. Over 300 people visited the building in 2012 and we hope to continue this success in 2014.

TURING GATEWAY TO MATHEMATICS

Post-Quantum Research

Over 50 people attended the Post-Quantum Research – Identifying Future Challenges and Directions Workshop from 8 to 9 May 2014 at the Isaac Newton Institute in Cambridge. This was organised by the Turing Gateway to Mathematics, with support from GCHQ, with the aim to bring mathematicians and computer scientists together to build UK capacity in the post-quantum research area.

Participants included academics, researchers and those representing industry.

This event was the first of a programme of activities to develop and broaden the post-quantum research community in the UK. This is largely based on the realistic possibility that in the medium term the power of quantum computation will have the potential to compromise some cyber security systems. Therefore, there is a current need to develop classical cryptographic security into schemes that are resistant to quantum computer attack.

The event sought to identify future challenges and directions for post-quantum cyber-security research and to generate ideas for developing UK research and teaching in the area.

The workshop included a selection of presentations that identified the possible challenges that could be faced and how these might be addressed. It also enabled discussion between those in industry who had identified problems and the academics who might work to solve these. Short talks were also given by next generation researchers which brought some new ideas to the audience. Facilitated discussions set out to explore and identify what is the state-of-the-art in quantum algorithms, what are the mathematical challenges in quantum algorithms, what are the cyber security issues today and what are the challenges for mathematicians in cyber security arising out of quantum computing?

Overall feedback from those who attended the event was positive and highlighted the benefit of having a wide spread of backgrounds in attendance. These were advantageous in helping facilitate the range of discussions that took place, allowing for good exploration of the issues/threats that could potentially be faced in the future.

A second workshop will take place from 18 to 19 September 2014 in Cambridge. This will take forward ideas generated in this first workshop, with a key aim to gain consensus in identifying the mathematical challenges in post-quantum cryptography. There will also be a focus on setting the agenda for future research directions and the event will be open to a wider audience, including public and industrial stakeholders.

For more details see www.turing-gateway.cam.ac.uk/gchq_may2014.shtml.

LONDON MATHEMATICAL SOCIETY OPEN HOUSE 2014

Institute of Education, London – Wednesday 9 July
University of Birmingham – Wednesday 24 September

Professor Kevin Buzzard
Imperial College London

What’s in a number?

Much of our work and our leisure interests are now stored in digital format – i.e., as numbers. This has weird consequences: for example some numbers are now copyrighted, and other numbers are illegal.

Professor Buzzard will explain some of these stories, and also what happens if one tries to digitise mathematics itself.

Dr Julia Gog
University of Cambridge

Epidemics and viruses: the mathematics of disease

Dr Gog will look at how mathematics has been applied to help understand and control infectious diseases, from the scale of a single virus particle through to a global influenza pandemic, and considers some mathematical challenges for the future.

LONDON: Commences at 7.00 pm, refreshments at 8.00 pm, ends at 9.30 pm
Admission is free, with ticket. Register by Thursday 3 July.

BIRMINGHAM: Commences at 6.30 pm, refreshments at 7.30 pm, ends at 9.00 pm
Admission is free, with ticket. Register by Thursday 18 September.

To register for tickets, please email popular.lectures@lms.ac.uk or visit the LMS website for abstracts and a registration form (www.lms.ac.uk/events/popular-lectures).
EUROPEAN NEWS

Who are the Invited Speakers at ICM 2014?

The purpose of this study by Martin Andler (Université de Versailles St Quentin, France) is to give an overview of the ICM 2014 speakers - not to say something about their mathematics but to answer questions about their gender, geographic origin, where they went to school at the various stages of their lives, etc. This list of 206 excellent mathematicians provides a good sample of our community, and hence of the globalisation of higher education and of the academic job market. 

[Source: EMS Newsletter June 2014, p. 38-44]

Shaw Prize in Mathematical Sciences 2014

George Lusztig, the Abdun-Nur Professor of Mathematics at MIT (Cambridge, MA, USA) was awarded the Shaw Prize in Mathematical Sciences for 2014. The Shaw Foundation cited him for his fundamental contributions to algebra, geometric representation theory, and for weaving these subjects together to solve old problems and reveal beautiful new connections. Further details at www.shawprize.org/en/ and http://tinyurl.com/le4ez29.

[Source: EMS e-News 11 May 2014]

IMAGINARY – Mathematics Communication for the 21st Century

IMAGINARY is the name of a collaborative mathematics outreach project that aims to improve the image and understanding of mathematics and in this way awake an interest and fuel passion for the subject in children and adults. This goal is achieved in different ways: on the one hand by showing the beauty and art in mathematics and on the other hand through surprising applications. To best understand the project we have to go back to its beginning.


[Source: www.euro-math-soc.eu/news.html]

Barcelona Dynamical Systems Prize 2015

With the patronage of Professor Carles Simó, the Societat Catalana de Matemàtiques will award a prize to the author or authors of a paper or research work in the area of Dynamical Systems, published or accepted for publication between 1 May 2013 and 31 April 2015. Further details available at http://tinyurl.com/qev3znv.

[Source: EMS e-News 11 May 2014]

Federigo Enriques Prize 2014

The Unione Matematica Italiana, in collaboration with Centro Studi Enriques, announces the Federigo Enriques Prize, to be awarded to a doctoral dissertation on subjects related to Federigo Enriques’ mathematical thought and defended in the last two years. Applications must be sent to UMI, Piazza di Porta San Donato 5, 40126 Bologna, not later than 30 November 2014. More information at http://umi.dm.unibo.it/premi/premio-federigo-enriques/.

[Source: EMS e-News 11 May 2014]

UAIM Book Prize

The Unione Matematica Italiana (UMI) has established a Prize of €4,000, sponsored by Springer-Verlag, for an excellent, original monograph in any field of mathematics. The first edition of the Prize will be awarded at the general UMI congress which will take place in Siena, September 2015. Applications and nomination letters must be sent to the UMI office (Piazza di Porta San Donato 5, I-40126 Bologna) not later than 30 November 2014. More information at http://tinyurl.com/le4ez29.

[Source: EMS e-News 11 May 2014]

New Service by EU-MATHS-IN

The association EU-MATHS-IN (promoted by the EMS and the ECM) has launched a new service: a website for advertising jobs for mathematicians in companies or institutions working on industrial contracts. See www.eumaths-in.eu/jobs.

[Source: EMS Newsletter June 2014, p.10]

New Editorial Board of the Journal of the European Mathematical Society

The Executive Committee of the EMS has appointed a new editorial board of its flagship journal, JEMS. The EMS is greatly indebted to the departing editorial board, which under the leadership of Professor Brézis has raised the journal to its current high rank. This board is responsible for the handling of papers submitted to JEMS before 1 June 2014; it will terminate its functions by September 2015.

At the same time, the EMS expresses its gratitude to the new editorial board for having accepted this important responsibility, and welcomes warmly all its members. From 1 June 2014, authors submitting articles to the journal are directed to an electronic submission system, and the new editorial board will handle these articles. For more information including lists of members of the new and of the departing editorial board see www.euro-math-soc.eu/node/4791.

[Source: EMS Newsletter June 2014, p.3-6]

Communication for the 21st Century

IMAGINARY is the name of a collaborative mathematics outreach project that aims to improve the image and understanding of mathematics and in this way awake an interest and fuel passion for the subject in children and adults. This goal is achieved in different ways: on the one hand by showing the beauty and art in mathematics and on the other hand through surprising applications. To best understand the project we have to go back to its beginning.


[Source: www.euro-math-soc.eu/news.html]
LMS NEWSLETTER

LMS WOMEN IN MATHEMATICS DAY 2014

Report

This year the LMS Women in Mathematics Day was held on 25 April 2014 at the LMS headquarters in central London.

After the opening welcome from LMS Vice-President Ken Brown, we had a programme packed with excellent speakers from a variety of mathematical and personal backgrounds and at various stages of their careers.

The morning speakers Sarah Hart (Birkbeck College), Katia Babbar (Lloyds) and Anne Juel (University of Manchester) spoke about their experiences of others. Despite almost all their queries being non-gender specific issues which can affect mathematicians or even a person in the early stages of their career in general, they felt more comfortable approaching female mathematicians.

The whole day, finished off by the conference dinner, provided all of us with a wonderful opportunity and sociable setting in which to swap amusing anecdotes, share concerns and experiences, and in general be encouraged and informed by the academic and non-academic experiences of others.

The entire meeting was an enriching day, and certainly I wish I knew about earlier and whether they are aiming for a career in academia or otherwise.

LMS NEWSLETTER

MATHEMATICS DAY 2014

Laura Watkin (EPSRC)

as a junior mathematician, their individual climb to successful careers (academic and financial), which involved having potential barriers which were often non-female specific and/or common in academia especially.

The three afternoon speakers Sian Fryer (University of Manchester), Mareike Habichter (University of Kent), and Masha Jankovic (University of Leicester) spoke on their PhD research and during tea breaks and lunch, we were also able to peruse posters submitted by 19 student participants on a diverse range of pure and applied mathematical research. Layal Hakim, of Brunel University, won the poster prize by vote, for her submission on Numerical Analysis of Cohesive Zone Model Approach for Time and History Dependent Materials.

Following the talks, we split into three discussion groups focussing on “Next steps in your career”, “General issues in the life of a mathematician”, and “Funding opportunities”; the latter included a presentation by Laura Watkin, the Mathematical Sciences portfolio manager from the EPSRC.

The very friendly forum atmosphere allowed participants to raise and explore questions including, but not restricted to, how/when to change/broaden research areas, taking the next step in one’s careers, balancing with personal wants, job hunting issues if you have a partner also in academia, and good/bad practices in university departments. Several of the younger mathematicians expressed that, despite almost all their queries being non-gender specific issues which can affect mathematicians or even a person in the early stages of their career in general, they felt more comfortable approaching female mathematicians.

The whole day, finished off by the conference dinner, provided all of us with a wonderful opportunity and sociable setting in which to swap amusing anecdotes, share concerns and experiences, and in general be encouraged and informed by the academic and non-academic experiences of others.

The entire meeting was an enriching day, and certainly I wish I knew about earlier meetings. I wholeheartedly encourage mathematicians to participate in these meetings, no matter what stage of career they are in and whether they are aiming for a career in academia or otherwise.

Layal Hakim (Brunel University) poster competition winner

RECORDS OF PROCEEDINGS AT LMS MEETINGS

ORDINARY MEETING

held on 8 April 2014 at Queen Mary College, University of London, during the British Mathematical Colloquium. Over 150 members and visitors were present for all or part of the meeting.

The meeting began at 11.30 am with The President, Professor Terry Lyons FRS, in the Chair.

The Treasurer, Professor Robert Curtis, presented a report on the Society’s activities.

No members were elected to membership.

Eight members signed the book and were admitted to the Society.

The President, on Council’s behalf, presented a certificate to Dr Corinna Ulcigrai, the winner of a Whitehead Prize in 2013.

Professor Lyons introduced a lecture given by Professor Claire Voisin on Points, zero cycles, and rationality questions.

The Chair expressed the thanks of the Society to the speaker for giving an interesting lecture.

The Chair also expressed thanks to Ivan Tomasic and Behrang Noohi for organising a successful BMC.
The 2014 LMS Gresham College Lecture given by Professor Marcus du Sautoy on The Secret Mathematicians took place on 21 May 2014. The lecture theatre at the Museum of London was completely full for this annual lecture which is a joint venture by the LMS and Gresham College. Marcus started by reminding us of his school-days where he seemed to be presented with a choice: Art v. Science. He was attracted by the excitement of Science and realised that mathematics seemed to forge a link between these two apparently different areas and decided that there was really a false dichotomy.

We are familiar with the idea that mathematicians often have other strings to their bows – music, chess, or even cricket (think G.H. Hardy – see later) and what was to be presented in this lecture were five 20th century practitioners in other fields for whom mathematics was an integral part of their activities.

The first was the composer Olivier Messiaen, who in the prison camp where he was interned wrote his famous Quatuor pour la Fin du Temps. In one movement, the Liturgie de Cristal, he writes a 17-note rhythm repeated over and over set against a 28-note harmonic sequence, so that, because of the primes involved, the two things never come back together during the course of the movement. This use of primes was illustrated again with magicicada septendecim, a cicada with a 17-year cycle. Other species apparently use 13 – was there a predator they were trying to avoid?

We then had a brief foray into the world of Fibonacci numbers, with numbers of petals and breeding rabbits, and a reminder that the Indian mathematician Hemachandra (1089–1172) looked at them rather earlier. And so to architecture, with Le Corbusier. He produced two series of numbers, his Série Rouge and Série Bleue, made up of Fibonacci-type numbers, which he used in creating living spaces in his buildings. Fibonacci also led to the spiral and the golden ratio as exemplified in many buildings. Palladio, however, preferred whole numbers, and for Zaha Hadid the mathematics definitely came through to architecture, with Le Corbusier. He has invented a way of representing the movements of dancers in 3-D shapes. (And here our lecturer mentioned his involvement in X&Y, a collaboration with Victoria Gould at the Science Museum.) And to come full circle we had a quotation from G.H. Hardy, in A Mathematician’s Apology, ‘I am interested in mathematics only as a creative art.’

An interesting and enjoyable evening.

Martin Perkins
Gresham College

The report is also on the Gresham College website: www.gresham.ac.uk/lectures-and-events/the-secret-mathematicians

**STRUCTURE, FUNCTION AND DYNAMICS IN MICROBIAL COMMUNITIES**

**30 - 31 October 2014**

in association with the Newton Institute programme

*Understanding Microbial Communities; Function, Structure and Dynamics* (11 August – 19 December 2014)

Organisers: Rosalind Allen (University of Edinburgh), Thomas Curtis (Newcastle University), Thomas Pfeiffer (Massey University), William Sloan (University of Glasgow), Orkun Soyer (University of Warwick) and Carsten Wiuf (University of Copenhagen).

Background: In recent years, our understanding of how microbial communities develop and function has been revolutionized by advances in both DNA sequencing and microscopy. Mathematical tools! provide a powerful tool for making sense of such data. This workshop will bring together leaders in the field, both from the experimental and theoretical sides, to highlight the current state of our understanding of microbial community structure, function and dynamics, and to discuss productive future directions. The workshop will focus on ecology, evolution and dynamics. The workshop will take place at the Isaac Newton Institute, Cambridge, UK, as part of a longer-term research programme on the study of function and structure of microbial communities. It will be preceded by a training event, aimed at early career researchers but all are welcome also to attend.

Closing date of the receipt of applications is **10 August 2014**.

Further information and application forms are available from the website at www.newton.ac.uk/programmes/UMC/umcw03.shtml
The 2014 LMS Northern Regional Meeting took place at Durham University on Monday 31 March and was followed by the Easter School Dynamics and Analytic Number Theory from 1 to 4 April 2014. The event was jointly organised by three Durham organisers (D. Badziahin, N. Peyerimhoff and T. Ward) together with A. Gorodnik (Bristol), A. Ghosh (TIFR) and B. Weiss (Tel Aviv). The intention of this event was to communicate remarkable recent developments at the interface between Number Theory and Dynamical Systems.

The LMS meeting was opened by the President of the LMS, Professor Terry Lyons, who introduced new LMS members, and invited members at the meeting, who had not previously done so, to sign the prestigious Membership Book. The following four day event was mainly aiming to introduce new LMS members, and T. Ward) together with A. Gorodnik (Bristol), N. Peyerimhoff (York), who introduced and discussed two fundamental results in the classical theory of metric Diophantine approximation, Khintchine’s and Jarník’s theorem, and who presented a surprising modern take on the connections between these two results. The next talk by Manfred Einsiedler (ETH Zurich) was about dynamical theorems on homogeneous spaces and how they can be applied in Diophantine analysis. The final afternoon talk was given by Giovanni Forni (Maryland), who described a geometric viewpoint on renormalization and discussed applications to linear skew-shifts and billiards in rational polygons.

Alex Gorodnik (Bristol), Fankai Vihe (York), Trevor Wooley (Bristol), Sanju Velani (York) on Effective Equidistribution for Thin Orbits, S. Velani (York) on Metric Diophantine Approximation and T. Wooley (Bristol) on Exponential Sums Associated with Translation-invariant Systems.

The Easter School was very well received by more than 60 young researchers, many of them PhD students from all around the world. Besides the financial support of the LMS there was also additional financial support via an ERC grant of A. Gorodnik (Bristol).

The timeliness of the event is confirmed by further forthcoming events on similar research topics like the Activity Dynamics and Numbers at the Max Planck Institute for Mathematics (Bonn) during June/July 2014 and the Programme Interactions between Dynamics of Group Actions and Number Theory during June/July 2014 at the Isaac Newton Institute for Mathematical Sciences.

Dmitry Badziahin and Norbert Peyerimhoff
RECORDS OF PROCEEDINGS
AT LMS MEETINGS

ORDINARY MEETING

held on 31 March 2014 at the University of Durham as part of the Northern Regional Meeting and Easter School on Dynamics and Analytic Number Theory. Over 70 members and visitors were present for all or part of the meeting.

The meeting began at 2.00 pm with The President, Professor Terry Lyons FRS, in the Chair.

Thirteen members were elected to Ordinary membership: Katia Babbar, Mártón Baláz, Gergely Berczi, Andrew Brooke-Taylor, Panagiotis Doukakis, Tamara Grava, Timothy McNicholl, Reto Mueller, David Platt, Peter Rowlett, John Smillie, Michael Todd, Alexandra Tzella.

Eleven members were elected to Associate membership: Thomas Booker-Price, Pierre Dechant, Grahame Erskine, Thomas Harris, Wilfred Itankan, Madeleine Jotz Lean, Sheng Li, Stuart Litobarski, Charles Muli, Jean-Frances Niglio, Luke Vorhies.

Two members were elected to Reciprocity membership: Avery Carr, Bruce McNeil.

Two members signed the book and were admitted to the Society.

Dr Dmitry Badziahin introduced a lecture given by Professor Sanju Velani on Metric Diophantine approximation: the Lebesgue and Hausdorff theories.

Dr Badziahin then introduced a lecture given by Professor Manfred Einsiedler on Diophantine Problems and Homogeneous Dynamics.

After tea, Dr Badziahin introduced the final lecture given by Professor Giovanni Forni on Beyond Renormalization in Parabolic Dynamics.

The President, Professor Lyons, expressed the thanks of the Society to the speakers and to Norbert Peyerimhoff, Dmitry Badziahin, Anish Ghosh, Alexander Gorodnik, Tom Ward and Barak Weiss for putting on such a wonderful meeting.

To register contact Elizabeth Fisher (lmsmeetings@lms.ac.uk) by Monday 1 September. Late registrations for places may still be accepted, subject to availability.

The reception will be followed by a dinner at venue (tbc), at a cost (tbc) per person, inclusive of wine. If you would like to attend the dinner, please contact Elizabeth Fisher (lmsmeetings@lms.ac.uk) by Monday 1 September.

There are limited funds available to contribute in part to the expenses of members of the Society or research students to attend the meeting. Please contact Elizabeth Fisher (lmsmeetings@lms.ac.uk) for further information.
VISIT OF GERHARD KELLER

Professor Gerhard Keller (Mathematics, University of Erlangen, Germany) will be visiting the UK from 24 September to 2 October 2014. His expertise is in ergodic theory and dynamical systems, especially the thermo-dynamic formalism, equilibrium states and spectral theory of dynamical systems. During his visit, Professor Keller will give lectures at the following locations:
- University of Exeter, 25 September, 4-5 pm (contact Peter Ashwin: P.Ashwin@ex.ac.uk). This lecture will be broadcast via

BMC/BAMC JOINT MEETING 2015

The organisers invite you to Cambridge for the combined British Mathematical Colloquium (BMC) and British Applied Mathematics Colloquium (BAMC) to commemorate the 150th Anniversary of the London Mathematical Society (LMS). The BMC/BAMC joint meeting will take place during Wednesday 1 April 2015 followed by the conference dinner that evening. For more information, and to register, visit the website at www.maths.gla.ac.uk/~sawi/Cstar14/main.html. The organisers are: Joan Bosa, Stuart White, Joachim Zacharias (Glasgow) and Wilhelm Winter (Münster). The event is supported by an LMS conference grant and EPSRC.

DISCONTINUOUS GALERKIN METHODS

A meeting on the Recent Advances in Discontinuous Galerkin Methods will take place at 54 The Department of Mathematics and Statistics at the University of Reading from 11 to 12 September 2014 and is dedicated to recent advances in various aspects related to discontinuous Galerkin methods.

The discontinuous Galerkin Method is a well-established approach for the numerical solution of PDEs with applications ranging from electromagnetic scattering to fluid and structural mechanics. One of the reasons of the success of the DG paradigm is its flexibility and capability to incorporate different numerical methodologies: high order approximation, a posteriori error control, Trefftz approximation, hp time stepping. The aim of the workshop is to bring together the leading scientists and active young researchers, mostly from the UK, working in the field of discontinuous Galerkin methods and initiate intensive idea exchanges.

The meeting will take place at the University of Reading and will consist of research lectures, discussion and problem sessions. The speakers include:
- Blanca Ayuso de Dios (KAUST)
- Gabriel Barrenechea (Strathclyde)
- Andrea Cangiani (Leicester)
- Andreas Dedner (Warwick)
- Herbert Egger (TU Darmstadt)
- Emmanuel Georgoulis (Leicester)
- Iain Smears (Oxford)
- Charalambos Makridakis (Sussex)
- Omar Lakkis (Sussex)
- Stefanos Sieder (Leicester)
- Paul Houston (Nottingham)
- Foteini Karakatsani (Strathclyde)
- Irene Kyza (Dundee)
- Omar Lakkis (Sussex)
- Matthias Maischak (Brunel)
- Charalambos Makridakis (Sussex)
- Iain Smears (Oxford)
- The registration fee is £30 (research students and postdoctoral researchers within three years of the completion of their PhDs are exempt). For further information visit the workshop website www.personal.reading.ac.uk/~st904897/ or contact the organizers Alexey Chernov, Andrea Mooija and Tristan Pryer by email (ReadAG@reading.ac.uk). The meeting is supported by an LMS Conference grant.
UNIVERSITY OF CAMBRIDGE
FACULTY OF MATHEMATICS

ADAMS PRIZE

Algebraic Geometry

The University of Cambridge has announced the subject for one of its oldest and most prestigious prizes. The Adams Prize is named after the mathematician John Couch Adams and was endowed by members of St John’s College. It commemorates Adams’s role in the discovery of the planet Neptune, through calculation of the discrepancies in the orbit of Uranus.

The Chairman of the Adjudicators for the Adams Prize invites applications for the 2014-15 Prize which will be awarded this year for achievements in the field of algebraic geometry.

The prize is open to any person who, on 31 October 2014, will hold an appointment in the UK, either in a university or in some other institution; and who is under 40 (in exceptional circumstances the Adjudicators may relax this age limit). The value of the prize is expected to be approximately £14,000, of which one third is awarded to the prize-winner’s institution (for research expenses of the prize-winner) and one third is awarded to the prize-winner on acceptance for publication in an internationally recognised journal of a substantial (normally at least 25 printed pages) original article, of which the prize-winner is an author, surveying a significant part of the winner’s field.

Applications (email and two hard copies), comprising a CV, a list of publications, the body of work (published or unpublished) to be considered, and a brief non-technical summary of the most significant new results of this work (designed for mathematicians not working in the subject area) should be sent to:

The Secretary of the Adams Prize Adjudicators,
Undergraduate Office, Centre for Mathematical Sciences,
Wilberforce Road, Cambridge, CB3 0WA
(Email: adamsprize@maths.cam.ac.uk)

The deadline for receipt of applications is 31 October 2014.
The 2014 Heilbronn Annual Conference will be held at the University of Bristol on the 11–12 September. A number of distinguished mathematicians are invited to present lectures, intended to be accessible to a mixed audience of mathematicians. Invited speakers:

Nalini Anantharaman, Universite Paris-Sud
Emmanuel Breuillard, University Paris-Sud
Martin Bridson, University of Oxford
Nick Duffield, Rutgers University
Alexander Holroyd, Microsoft Research
Hendrik Lenstra, University of Leiden
James Maynard, University of Oxford
Nick Duffield, University of Oxford
Hendrik Lenstra, University of Leiden
James Maynard, University of Oxford
Nick Duffield, University of Oxford

There is no registration fee but to enable estimation of numbers, please complete this on-line form: www.ima.org.uk/mathematics/heilbronnregistration2014

UK graduate students and postdoctoral fellows who would like to attend and need support should contact heilbronn-coordinator@bristol.ac.uk before 15 July detailing their requirements, enclosing a brief CV, and explaining why other support is not available. The final programme and additional details will be posted on the Institute website in due course.

Venue
Pugsley Lecture Theatre, 1.40 Queens Building, University Walk, Bristol, BS8 1TR

Visit www.ima.org.uk/conferences/conferences_calendar.cfm to keep up to date with the conference programme, and for further information or to register your interest any of the above conferences, please contact Lizzi Lake, Conference Officer, email: conferences@ima.org.uk, tel: +44 (0) 1702 354 020, fax: +44 (0) 1702 354 111, Institute of Mathematics and its Applications, Catherine Richards House, 16 Nelson Street, Southend-on-Sea, Essex SS1 1EF, UK.
**LMS NEWSLETTER**

http://newsletter.lms.ac.uk

**WEDNESDAY 10 SEPTEMBER**


**SUNDAY 7 SEPTEMBER**

10.00-11.00 *Seventeen or Bust*, Iain Bethune (EPCC, University of Edinburgh)

11.30-12.30 *The Sierpinski conjecture, and what you can do to help.*

12:30-14:30 *Sex, Maths and the Brain: Where Have All the Girl Scientists Gone?,* Gina Rippon (Aston)

13:00-14:30 *When Fridges Attack: Big Data Meets Intelligent Machines* The 2014 Mathematical Sciences Presidential Lecture by Peter McOwan (QMUL), with Louis McCallum (QMUL).

**MONDAY 8 SEPTEMBER**

11:00-12:00 *Pocket Doctor, Max Little* (Aston)

**TUESDAY 9 SEPTEMBER**

16:30-17:30 *The Royal Society Vision for the Future of Science and Mathematics Education*

**FESTIVAL 2015**

The format of a Festival of Science in 2015 is not yet settled. If there is a call for event proposals as in previous years then I shall be circulating notices to email lists in the autumn of this year. Any queries please to the Chair of the Mathematical Sciences Section, Peter Giblin (p.j.giblin@liv.ac.uk).

**GENERALIZED FUNCTIONS**

An international conference on Generalized Functions (GF2014) will take place at the Department of Mathematical Sciences, University of Southampton from 8 to 12 September 2014. This conference continues a long-standing tradition of international conferences on generalized functions gathering researchers working in all branches of the field. Topics include:

- Distribution theory, hyperfunctions, algebras of generalized functions, integral transforms,
- Linear and nonlinear differential equations, solvability, regularity, stochastic analysis,
- Pseudodifferential operators and microlocal analysis,
- Geometric problems and nonlinear distributional geometry,
- Applications in mathematical modelling and mathematical physics, applied analysis,
- Harmonic analysis, modulation spaces, time-frequency analysis.

Confirmed speakers are:

- Pedro Catuogno (University Estadual de Campinas)
- Sandro Coriasco (University of Turin)
- Claudia Garetto (Loughborough University)
- James Grant (University of Surrey)
- Eduard Nigsch (University of Vienna)
- Michael Oberguggenberger (University of Innsbruck)
- Stevan Pilipovic (University of Novi Sad)
- Luigi Rodino (University of Turin)
- Michael Ruzhansky (Imperial College, London)
- Roland Steinbauer (University of Vienna)
- Joachim Toft (Växjö University)
- Jasson Vidas (University of Ghent)

For details and registration form see the conference webpage at www.ocs.soton.ac.uk/index.php/gf2014/gf2014 or contact the organising committee at gf2014@soc.soton.ac.uk or the Chair of the Organising Committee: James Vickers (J.A.Vickers@soton.ac.uk).

The conference may be able to offer 98
some degree of financial support to participants giving contributed talks, to postgraduate students, and to others unable to cover costs from their own sources. Contact gft2014@soton.ac.uk if you would like to request financial support. The conference is supported by an LMS Conference grant and the University of Southampton.

FUNCTION THEORY MEETING

This year’s One Day Function Theory Meeting will be held on Monday 1 September 2014 at De Morgan House in London. This popular meeting, well attended by function theorists from the UK and Ireland, has been held annually for over thirty years.

Speakers will include Professor Nuria Fagella (University of Barcelona) who will speak on Hyperbolic entire functions with bounded Fatou components, and Professor Lasse Rempe-Gillen (University of Liverpool) who will speak on Arc-like continua. Julia sets of entire functions, and Eremenko’s conjecture.

Email the organiser (odftm.mail@gmail.com) if you are interested in attending. Information about past meetings and the location of De Morgan House can be found on the One Day Function Theory Meeting website at https://sites.google.com/site/functiontheorymeeting/ or by contacting the organiser, Matthew Lettington (LettingtonMC@cardiff.ac.uk). The meeting is supported by an LMS Conference grant and by Cardiff University.

BRITISH ALGEBRAIC GEOMETRY

The first British Algebraic Geometry Meeting (BrAG) will take place at the Mathematics Institute at the University of Warwick from 22 to 24 September 2014. The conference will start on Monday at 2.30 pm and finish on Wednesday at 2.30 pm.

This will be the inaugural meeting of a planned series of regular meetings of British algebraic geometers. The goal is to create a series that further strengthens the British algebraic geometry community, in particular by integrating PG students and young researchers. The first meeting will feature a number of pre-talks for graduate students, a poster session, and will include plenty of time for informal interactions between the participants. The speakers are:

- Mathias Beiglböck (Vienna)
- Nathanael Berestycki (Cambridge)
- Franco Flandoli (Pisa)
- István Gyöngy (Edinburgh)
- Ioannis Karatzas (Columbia)
- Vassili Kolokoltsov (Warwick)
- Claudio Landim (IMPA-Rio de Janeiro and CNRS)
- Sylvie Méléard (Ecole Polytechnique)
- Ashkan Nikeghbali (Zurich)
- Sandrine Péché (Paris VII)
- Vitali Wachtel (Ludwig-Maximilians-Universität München)

There is a £45 registration fee (£15 per day) to cover coffee/tea and lunches. Some funding is available to contribute to the expenses of research students. For more information, including how to register, see the meeting website http://mathsents.cf.ac.uk/huxleymeeting/index.html or contact the organiser, Christopher Hooley (University of Bristol).

The meeting is supported by an LMS Conference grant and by Cardiff University.

UK PROBABILITY MEETING 2014

The next UK Probability Meeting From Microscopic Randomness to Macroscopic Phenomena will take place at Imperial College London from 15 to 19 September 2014. As with previous meetings, the general aim of the conference is to bring together the UK probability community, showcase recent developments, and invite leading international researchers to give short courses on topical and emerging areas in the field. The meeting is organised by the Imperial Probability Centre and will include mini-courses by:

- Krzysztof Burdzy (Washington)
- Gareth Roberts (Warwick)
- Walter Schachermayer (Vienna)

and a number of invited one-hour talks. Confirmed invited speakers include:

- Mathias Beiglböck (Vienna)
- Nathanael Berestycki (Cambridge)
- Francisco Flandoli (Pisa)
- István Gyöngy (Edinburgh)
- Saul Jacka (Warwick)
- Ioannis Karatzas (Columbia)
- Vassili Kolokoltsov (Warwick)
- Claudio Landim (IMPA-Rio de Janeiro and CNRS)
- Sylvie Méléard (Ecole Polytechnique)
- Ashkan Nikeghbali (Zurich)
- Sandrine Péché (Paris VII)
- Vitali Wachtel (Ludwig-Maximilians-Universität München)

Registration is now open via the conference website at www2.imperial.ac.uk/~amijatov/IP/EM2014/IPM.html

Some support for PhD students will be available. Details on how to apply can be found on the conference website (deadline 31 July 2014).

The meeting traditionally takes place in April of every other year. However, in 2014, the meeting has been moved to September due to the temporal proximity of other large events in probability in the UK. The meeting is organised by Nick Bingham, Rama Cont, Dan Crisan, and Alex Mijatovic. It is supported by an LMS Conference grant, EPSRC, and the Warwick MRC.

BRITISH LOGIC COLLOQUIUM 2014

The British Logic Colloquium (BLC) 2014 will be held at the University of Central Lancashire from 3 to 5 September 2014. It will be preceded by a BLC PhD Day from 2 to 3 September. This is a general Logic meeting and will cover a variety of topics within the subject.

Speakers will include:

- Natasha Alechina (Nottingham)
- Ann Copestake (Cambridge)
- Anuj Dawar (Cambridge)
- Immanuel Halupczok (Leeds)
- Johnathan Kirby (UEA)
- Graham Leigh (Oxford)
- Jeff Paris (Manchester)
- Alex Simpson (Edinburgh)
- Boban Velickovic (Paris)
- Nathanael Berestycki (Cambridge)
- Mathias Beiglböck (Vienna)
- Ioannis Karatzas (Columbia)
- Vassili Kolokoltsov (Warwick)
- Claudio Landim (IMPA-Rio de Janeiro and CNRS)
- Sylvie Méléard (Ecole Polytechnique)
- Ashkan Nikeghbali (Zurich)
- Sandrine Péché (Paris VII)
- Vitali Wachtel (Ludwig-Maximilians-Universität München)

The meeting traditionally takes place in April of every other year. However, in 2014, the meeting has been moved to September due to the temporal proximity of other large events in probability in the UK. The meeting is supported by an LMS Conference grant and the British Logic Colloquium.
The 29th British Topology Meeting will take place in the School of Mathematical Sciences at the University of Southampton from 8 to 10 September 2014. It will showcase recent developments in topology and its connections with other areas of mathematics. The speakers include:

- Tara Brendle (University of Glasgow)
- Iw Madsen (University of Copenhagen)
- Aniceto Murillo (Universidad de Malaga)
- Taras Panov (Moscow State University)
- Henry Wilton (University College London)
- Birgit Richter (University of Hamburg)
- Vladimir Verrin (Univeriste Montpellier)
- Stephen Theriault (S.D.Theriault@soton.ac.uk), Ian Leary (I.J.Leary@soton.ac.uk)

There are also open slots for contributed talks. The registration fee is £30 (research students are exempt). Some funding is available to contribute to the travel and accommodation expenses of research students. For further information, including how to register or apply to give a contributed talk, visit the meeting’s website www.personal.soton.ac.uk/ijy09/btm14/ or contact one of the organisers: Jelena Grbic (J.Grbic@soton.ac.uk), Ian Leary (I.J.Leary@soton.ac.uk) and Stephen Theriault (S.D.Theriault@soton.ac.uk). The meeting is supported by an LMS Conference grant.

LIMIT THEOREMS

A one-day workshop on Limit Theorems, Probability Approximations and Related Areas will be held at Heriot-Watt University on Friday 12 September 2014. Speakers for the event are:

- Gesine Reinert (University of Oxford)
- Sergey Utev (University of Leicester)
- Fraser Daly (Heriot-Watt University)

For further information see the workshop website www.macs.hw.ac.uk/~fd78/tpara or contact Fraser Daly (F.Daly@hw.ac.uk). The meeting is supported by an LMS Conference grant under the Celebrating New Appointments scheme.
METHODS FOR MATHEMATICAL AND EMPIRICAL ANALYSIS OF MICROBIAL COMMUNITIES

PhD Summer School
27 - 29 October 2014
in association with the Newton Institute programme
Understanding Microbial Communities; Function, Structure and Dynamics
(11 August – 19 December 2014)

Organisers: Rosalind Allen (University of Edinburgh), Thomas Curtis (Newcastle University), Thomas Pfeiffer (Massey University), William Sloan (University of Glasgow), Orkun Soyer (University of Warwick) and Carsten Wiuf (University of Copenhagen).

Background: Theoretical and computational techniques to model microbial communities are essential tools for making sense of the massive amounts of new data emerging from DNA sequencing. This two-day workshop will feature tutorial-style lectures on a number of themes that are emerging in this field, ranging from understanding and interpreting microbial evolution experiments, through individual-based modelling, to analysis of sequence data. The meeting is open to all, but aimed at early career researchers, whom will be given the opportunity to present their work in short talks and posters. The workshop will take place at the Isaac Newton Institute, Cambridge, UK, as part of a longer-term research programme on the study of function and structure of microbial communities.

Closing date of the receipt of applications is 10 August 2014.

Further information and application forms are available from the website at www.newton.ac.uk/programmes/UMC/umcw02.shtml

AMERICAN MATHEMATICAL SOCIETY

ASYMPTOPIA
Joel Spencer, New York University
With Laura Florescu, New York University
Asymptotics in one form or another are part of the landscape for every mathematician. The objective of this book is to present the ideas of how to approach asymptotic problems that arise in discrete mathematics, analysis of algorithms, and number theory. A broad range of topics is covered, including distribution of prime integers, Erdős Magic, random graphs, Ramsey numbers, and asymptotic geometry.
Asymptopia is a beautiful world. Enjoy!
Student Mathematical Library, Vol. 71
Jun 2014 195pp 9781470409043 Paperback £29.50

MATHMATICS ACROSS THE IRON CURTAIN
A History of the Algebraic Theory of Semigroups
Christopher Hollings
The theory of semigroups is a relatively young branch of mathematics, with most of the major results having appeared after the Second World War. This book describes the evolution of (algebraic) semigroup theory from its earliest origins to the establishment of a full-fledged theory.
Semigroup theory might be termed 'Cold War mathematics' because of the time during which it developed. There were thriving schools on both sides of the Iron Curtain, although the two sides were not always able to communicate with each other, or even gain access to the other's publications. A major theme of this book is the comparison of the approaches to the subject of mathematicians in East and West, and the study of the extent to which contact between the two sides was possible.
History of Mathematics, Vol. 41
Sep 2014 469pp 9781470414931 Hardback £81.50

To order AMS titles visit www.eurospanbookstore.com/ams
MEMBERS’ OPINIONS ...... have your say

All opinions submitted to this section are strictly those of the contributor and do not necessarily represent the views of the London Mathematical Society.

These two opinions close this particular debate.

We would welcome opinions on other topics relevant to mathematics (newsletter@lms.ac.uk). Items are accepted at the discretion of the Editor and subject to available space in any given edition. Items may also be reproduced on the LMS Members blog to allow debates to continue for a longer period of time.

SHOULD MATHEMATICIANS COOPERATE WITH GCHQ?

Trevor Jarvis (University of Hull - ret’d)

This question was posed by Tom Leinster in the April LMS Newsletter. His quite reasonable article referred to widespread allegations that the security services monitor much of our lives.

Richard Pinch (May LMS Newsletter) and Malcolm MacCallum (June LMS Newsletter) each make a valiant attempt to stave off the question. Their defence is basically ‘we don’t believe the allegations but we can’t say why.’

‘Allegations about GCHQ’s activities are not going to be confirmed or denied. Either we will be helpful to hostile nations, terrorists or criminals.’

That is very puzzling. In what way would it help ‘hostile nations, terrorists or criminals’ to know their every move was being watched?

Haven’t they caught on yet?

Malcolm MacCallum says that the intelligence agencies have thwarted 34 terrorist plots. Well, maybe they have, maybe they haven’t.

We don’t know. Mathematicians don’t usually take things on trust. In any case, if the plots have been foiled shouldn’t the would-be perpetrators be publicly exposed – pour déranger les autres?

Praising the work of GCHQ and the intelligence agencies in stopping innocent people committing terrorist acts is as ridiculous as praising the work of the police to stop criminals committing crime. They would leave the building. By contrast, GCHQ’s own documents detail how it secretly captured webcam images, many sexually explicit, from millions of ordinary people. If that is not ‘snooping’, what is?

We all want spies to spy on terrorists. We all agree that the secret services must have secrets. We all support targeted surveillance. But what is at issue is mass surveillance: the monitoring of everyone, all the time.

Pinch and MacCallum blur that distinction. Thus, MacCallum cites MI5 head Andrew Parker’s statement that the agencies and police have disrupted many “plots towards terrorism”. But Parker did not credit mass surveillance; on the contrary, he added that almost all the plots came from a known pool of several thousand individuals. Even less relevant is MacCallum’s observation that phone billing records can be useful in criminal trials. These are obtained from phone companies, not GCHQ.

Heads of mathematics departments would probably like to “stay out of politics”. This is wishing for the impossible. It is illogical to maintain that dissenting from cooperation with GCHQ is a political act, but assenting is not.

A HoD who runs a working relationship with GCHQ is implementing a political view just as surely as one who declines.

HoDs should at least consult openly. In London, resentment has been caused by the establishment of joint positions with GCHQ without proper consultation. Medicine and psychology departments routinely make ethical policies.

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HoDs should at least consult openly. In London, resentment has been caused by the establishment of joint positions with GCHQ without proper consultation. Medicine and psychology departments routinely make ethical assessments. Maybe it is time for mathematics departments to draw up their own ethical policies.

We now have detailed evidence of what we are supporting when we collaborate with the establishment of joint positions with GCHQ. With GCHQ without proper consultation. Medicine and psychology departments routinely make ethical assessments. Maybe it is time for mathematics departments to draw up their own ethical policies.

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1MacCallum disputes one I didn’t make; see the longer online version of this article at www.maths.ed.ac.uk/~tl. In both that and my previous article, every factual statement is hyperlinked to supporting evidence.
OBITUARIES

MURRAY MACBEATH

Professor AM Macbeath, who was elected a member of the London Mathematical Society on 16th January 1947, died on 26 May 2014, aged 90.

Bill Harvey writes: Born in Glasgow, his early education was at Royal Belfast Academy and Queen’s College, Belfast. On moving to Clare College, Cambridge in 1943, his precocious mathematical abilities were recognised and he joined the code-breakers at Bletchley Park (1943-45). After the war, a glittering educational career followed: wrangler in the Mathematical Tripos, MA (Cantab) 1948 and Smith’s Prize in 1949. Two years as a Commonwealth fellow in Princeton led to a PhD under Emil Artin, moving to Clare College, Cambridge in 1943, supervised by him. His lectures Discontinu-

ous groups and birational transformations from the 1961 Dundee Conference were very influential in fostering interest in finite group actions on surfaces, group presenta-

tions and the topology of 2- and 3-dimen-

sional orbifolds. He spent several periods in visiting positions including Caltech and Pitts-

burgh, St. Andrews and Warwick. He will be greatly missed by all who knew him and his work.

As a postgraduate student of Murray Macbeath in Birmingham from 1962, I was privileged to gain the best possible introduc-

tion to research, with fascinating new ideas at play fostered by a friendly and encourag-

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opment of quasiconformal mappings and moduli of Riemann surfaces at that time by Lars Ahlfors, Lipman Bers and Harry Reuch. These ideas have proved inspirational to a host of researchers around the world.

Murray had a gift for friendship which enriched life among us graduate students and this together with his academic repu-

tation drew many important visitors to the Birmingham department. He had a quietly mischievous sense of humour and a quick line of wit and aphorism delivered in his very own soft highland brogue. This never deserted him and throughout his retirement he and Julie continued to make new friends: his funeral was a standing-room-only affair. For me, with his high intelligence, kindness and innate modesty, he has been a model as mathematician and human being. An in-

dependent observer might note the lack of any formal recognition for his achievements from the British science establishment. He would smile and refer us to the bard: For a’ that, and a’ that, Our toils obscure and a’ that, The rank is but the guinea’s stamp, The man’s the gowd for a’ that.

I can see him still, at a workshop on Dessins d’enfant in Southampton in Millennium year, sitting happily with his old friend Robert Rankin and enjoying the fare: the talks, the chat and the conviviality. RIP, Murray.

ADAM GELBTUCH

Adam Gelbtuch, Chairman of Pion Ltd Publishers, died on 3 April 2014 aged 93.

Robert Welham writes: He was born in 1921 in Krakow. He came to the UK in 1938 to study aeronautical engi-

neering at Imperial College London. Returning to visit his parents in the summer of 1939 he was caught up in the invasion of his country and was captured by the Russians and held in harsh conditions of captivity in a labour camp, where his father died. In 1941 those conditions eased but ill-health prevented his being drafted into the Polish armies then being formed. He found himself in Tashkent where evacuated Russians and internes had formed a university. He studied there under the famous Academi-

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Pion was involved in the publishing of a translation of Russian Mathematical Surveys for the LMS and the British Library from the late 1970s. From 1990 onwards, Adam or-

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tion of these journals continues.

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He continued daily attendance at his office up to his 92nd year. He leaves Helen, whom he married in 1949, their daughter, Maya, a university lecturer in Japan and specialist in the social and cultural anthropology of that country, and a grandson, Misha, as well as many friends around the world.

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Research highlights from the leading mathematical journals

Izvestiya: Mathematics
http://iopscience.org/im

Russian Mathematical Surveys
http://iopscience.org/rms

Sbornik: Mathematics
http://iopscience.org/msb

Free to read in 2014

2013 highlights
Collections of the very best articles published in 2013.

Yakov G Sinai collection
Go to http://iopscience.org/sinai to discover a special collection of first-class research in mathematics from the 2014 recipient of the Abel Prize, free to read until the end of December.

KNOTS UNRAVELLED: From String to Mathematics

This is the blurb from the back of the book:

KNOTS UNRAVELLED is a guide to the fascinating world of knots, from the familiar realm of knotted string to the less familiar branch of mathematics known as knot theory.

• Are two given knots the same or different?
• How many knots are there?
• Can knots be classified?
Questions like this are easily asked, but finding answers requires more effort. Mathematical ideas help to put the study of knots on a firm footing, and also either answer such questions, or explain why an answer cannot be found. The core chapters of Knots Unravelled lead the reader through this mathematics, from the basics to the frontiers of current work in knot theory.

Between the main chapters, the ‘interludes’ reveal some of the rich variety of ways in which knots appear throughout human culture, drawing attention to related mathematics and making connections with other material in the book.

A key feature of the text is the range of tasks and activities for the reader to work through—with string, rope, or pencil and paper to hand! Complete solutions are provided at the back of the book.

The book makes full use of clear diagrams, and a table of knots, a glossary and an index are included.

The question now is, how successful have the authors been in their endeavours?

Before answering this, here is a list of contents:

1. Introduction: Knots everywhere, Knots in rope, Knot science, History.
2. Interlude: Knots in paper
3. Working with diagrams:
   a. Describing knots, Mathematical knots, Projections and knot diagrams, knotted or not?
   b. The same or different? Reidemeister moves.
4. Interlude: Celtic knots
5. Counting crossings:
   a. Telling knots apart, The crossing number, Which crossing numbers are possible?
   b. Does the crossing number classify knots? Classifying knots.
6. Interlude: Tie knots
7. New knots from old:
   b. Interlude: The figure of eight
8. Using colours:
   a. Knot invariants, three-colourability.
   b. Interlude: Hunter’s bend
9. Links:
   a. What is a link? The Borromean rings, Components, The linking number, three-colourability.
   b. Interlude: Torus knots
10. Knot polynomials:
    a. The bracket polynomial, the writhe, The X-polynomial, The Jones polynomial.
    b. Postlude: A special trefoil
    c. Tables of links and knots.

This is an impressive list of contents and the authors introduce us to these subjects in an easy yet rigorous manner.

The readership is claimed to consist of school children. In fact the early chapters is intended for 12/13 year olds.

The book is a good read and could be a useful addition to a school’s library but I
Beautifying ideas whether they are from literature, philosophy or science and mathematics is good for growth. A mental growth that cannot be brought about if mathematics is taught with the depressing attitude that makes the students learn the bare minimum which will allow some good marks at the exams but leaves everyone empty handed when facing non-standardised questions.

The book by Maor and Jost should be given to everyone – young or old – embarking on the study of mathematics or anyone teaching mathematics. The book will act as a source of inspiration and as a reminder of why it is that mathematics has fascinated the human race for millennia.

Henrik Jeldtoft Jensen
Imperial College London

PRIMALITY TESTING FOR BEGINNERS

This book aims to take the reader from a pre-university knowledge of mathematics to the Agrawal-Kayal-Saxena (AKS) polynomial time primality test of 2004 in just 200 pages. That is certainly an ambitious aim, so we need to ask to what extent the authors succeed, and what else does one learn along the journey.

To understand and prove correctness of the AKS test one needs the basics of elementary number theory and abstract algebra (group theory and the theory of polynomial rings) but to understand its significance as the first deterministic polynomial time primality test one also needs the rudiments of the theory of algorithms.

The first part of the book, deals with elementary number theory as well as algorithmic complexity. The authors develop number theory from scratch up to Fermat’s little theorem and Euler’s generalization. They discuss the Fermat and Miller-Rabin tests in detail. Applications to cryptography are touched on but not dwelt on. In preparation for the AKS test they include a very careful discussion of polynomial arithmetic over the integers modulo an integer or modulo a polynomial or modulo both. This is presented in a leisurely way with plenty of examples. The discussion of algorithms not only delineates the complexity classes P and NP but also gives a lucid explanation of the distinction between Monte Carlo and Las Vegas algorithms.

The second part presents the AKS algorithm itself. This algorithm relies on the analogue of Fermat’s little theorem in polynomial rings. The authors mention the precursor to this algorithm, the Monte Carlo test of Agrawal 75 and Biswas, but devote most attention to the AKS test itself. They give a complete proof of the correctness of the AKS test and also of its polynomial running time.

Throughout the book, the authors give complete proofs but also plenty of exercises. The exposition is never rushed, and the authors are happy to take a page where many textbooks would take a paragraph. They finish with an appendix on open problems in number theory, and solutions for selected exercises. As the title suggests, this is a good book for beginners, but while it does touch on many aspects of number theory, it is not and does not claim to be a comprehensive introduction to number theory. Ambitious sixth-formers and beginning undergraduates should enjoy it, while more advanced students will find it an interesting complement to the more conventional texts on number theory.

Robin Chapman
Exeter University
CALENDAR OF EVENTS

This calendar lists Society meetings and other mathematical events. Further information may be obtained from the appropriate LMS Newsletter whose number is given in brackets. A fuller list is given on the Society's website (www.lms.ac.uk/content/calendar). Please send updates and corrections to calendar@lms.ac.uk.

JULY 2014
3–4 Higher Structures in Number Theory Workshop, Nottingham (436)
4 Hardy Lecture, LMS Meeting, London (437)
4 LMS Graduate Student Meeting, London (437)
5–10 Activities on Symmetries and Correspondences Conference, Oxford (436)
6–7 Set Theory: Inner and Outer Model Theory Meeting, Bristol (437)
7–11 Symmetries in Graphs, Maps and Polytopes Workshop, ELIM Conference Centre, West Malvern (436)
8–9 An Invitation to Geometry & Topology Via G2, LMS–CMI Research School, Imperial College London (436)
9 LMS Popular Lectures, London (438)
13–15 Modelling in Industrial Maintenance and Reliability IMA Conference, Oxford (436)
14–16 Representations of Symmetric Groups, Hecke Algebras and KL Algebras, Birmingham (437)
14–16 Bianchi and Siegel Modular Forms, Sheffield (437)
14–18 Analytic Number Theory and its Applications, Thessaloniki, Greece (438)
17–18 Projection and Slicing Theorems in Fractal Geometry, Bristol (437)
21–24 Kent Algebra Days Young Researchers, University of Kent (437)
21 LMS Spitfields Day, Advances in the Mathematics of Water Waves, INI Cambridge (438)
23–25 ISSAC 2014 Kobe University, Japan
28–1 Aug Mathematical Relativity, ESI-EMS-IAMP Summer School, Vienna
29–4 Aug International Mathematics Competition for University Students, Blagoevgrad, Bulgaria (435)

SEPTEMBER 2014
1 Function Theory Meeting, London (438)
2–3 British Logic Colloquium PhD Day, University of Central Lancashire (436)
3–5 British Logic Colloquium, University of Central Lancashire (438)
3–5 Stable Homotopy Theory Conference, Manchester (437)
3–5 Numerical Linear Algebra and Optimisation IMA Conference, Birmingham (438)
3–5 Jordan Geometric Analysis and Applications, Queen Mary, University of London (432)
3–5 Operator Theory Workshop, Queen’s University, Belfast (435)
5–6 Caucasian Mathematical Conference Tbilisi, Georgia
6 Mathematics and the First World War, LMS Meeting, London (438)
6–11 British Science Festival, Birmingham (438)

AUGUST 2014
4–8 Principles and Applications of Control to Quantum Systems INI Workshop, Cambridge (436)
9–8 Water Waves INI Summer School, Cambridge (437)
12 & 14 International Congress for Women in Mathematics 2014, Seoul, Republic of Korea (433)
13–21 ICM 2014, Seoul, Republic of Korea (437)
18–21 Operator Methods in Harmonic Analysis Workshop, Queen’s University Belfast (437)
19 LMS Meeting and Reception, ICM, Seoul, Republic of Korea (438)
25–29 Algebraic Lie Theory and Representation Theory, LMS–CMI Research School, Glasgow (435)
25–5 Sept Classification, Structure, Amenability and Regularity Masterclass and Conference (438)
28–30 15th International Pure Mathematics Conference, Islamabad

NOVEMBER 2014
14 LMS AGM, London
22 Early Career Mathematicians’ Autumn IMA Conference, Queen Mary University London (438)
26–28 Engineering and Control of Natural and Synthetic Microbial Communities, INI Workshop, Cambridge

DECEMBER 2014
8–10 Applications of Game Theory IMA Conference, Oxford (438)
15–17 Maths in Signal Processing IMA Conference, Birmingham (438)

JANUARY 2015
9 Research in Mathematics and its Applications IMA Conference, Bath (438)

MARCH 2015
30–31 Industrial Assessment IMA Conference, Swansea (438)
30–2 Apr Joint Meeting of the BMC and BAMS, Cambridge (438)

APRIL 2015
20 Mathematical Education of Engineers IMA Conference, Loughborough (438)

JUNE 2015
10–12 Barriers and Enablers to Learning Maths IMA International Conference, Glasgow (438)
18–19 Mathematics in Finance IMA Conference, Manchester

JULY 2015
13–17 Conference on Stochastic Processes and their Applications, Oxford

SEPTEMBER 2015
1–4 Numerical Methods for Simulation IMA Conference, Oxford
9–11 Mathematics of Robotics IMA Conference, Oxford
LMS WOMEN IN MATHEMATICS DAY
held at De Morgan House, London, on 25 April 2014
(report on page 20)

Katia Babbar (Lloyds)
Sarah Hart (Birkbeck College)

Masha Jankovic (University of Leicester)
Sian Fryer (University of Manchester)

Anne Juel (University of Manchester)
Mareiek Haberichter (University of Kent)