

No. 394 July 2010

Society Meetings and Events

2010

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Wednesday

25 August LMS Meeting ICM 2010, Hyderabad [page 3]

Monday 6 September

Midlands Regional Meeting, Nottingham [page 17]

Friday 17 September

Spitalfields Day Edinburgh [*page* 13]

Wednesday

29 September Popular Lectures Birmingham [page 26]

Friday 19 November

Annual General Meeting and Naylor Lecture, London

LMS COUNCIL DIARY Friday 7 May 2010

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At the LMS Council meeting the President Angus Macintyre reported that Frank Kelly had accepted the invitation to be David Wallace's successor as Chair of the Council for the Mathematical Sciences. This is great news. The Council is a joint project of the LMS, the IMA and the RSS which makes the case for mathematical research to the government and the public. Kelly is a leading figure in the mathematics of stochastic networks, and served from 2003 to 2006 as Chief Scientific Adviser to the Department of Transport.

LMS Vice-President Ken Brown reported that the new LMS Executive Secretary, Fiona Nixon, will start work on Monday 14 June. We are fortunate that Ivor Goddard has agreed to continue as interim Executive Secretary until that time. Another important administrative position at the LMS has also been filled: Anne Bennett, an experienced Administrator from the Royal Society of Chemistry, will be Group Head for Council and Committees.

Council agreed to increase the maximum award for the LMS Grant Scheme 4, Collaborative Small Grants (now renamed 'Research in Pairs'), from £600 to £700. Mathematicians are invited to take advantage of this and other LMS grant schemes. Scheme 4 allows mathematicians within the UK to invite a

collaborator from abroad, or to visit a collaborator abroad, for at least several working days.

A major task for the LMS this year is to design a new website, the current one being very old. We need a good website to improve communication with members and with the public. A strong on-line presence is also a major asset in the LMS's promotion of mathematics and its value to society.

Stephen Huggett reported to Council on the first meeting of the Website Working Party. They had written a draft tender to request proposals from companies to design the new website. Council discussed the pros and cons of hiring a company to design the website versus relying on contributions from interested mathematicians. The European Mathematical Society's website is a successful example of one designed by mathematicians with very little money spent; it is sophisticated enough to allow EMS members to pay membership fees on-line, for example. Nonetheless, the majority view was that we should look for an experienced company in order to have confidence that we will have an effective and attractive website at some guaranteed date. Council agreed to put out a tender in June. At the same time, we have to think about how to use the enthusiasm and ability of mathematicians to contribute to the website. Any company we hire will have to spend time talking to

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NEWSLETTER

mathematicians to find out what we want.

Rosemary Bailey and Peter Saunders reported on their work as Scrutineers of the LMS elections in 2009. It takes a significant amount of time for the Scrutineers to check the recording of the votes, and the Council thanked them for their work. Council adopted the Scrutineers' recommendations to increase the security of the vote and avoid the problems they experienced last year.

Robert Wilson reported on the meeting of 4 February 2010 between EPSRC and several learned societies. Since then there has been grim news for mathematics, including a 20% cut to the Doctoral Training Accounts which fund most mathematics PhDs in the UK. The LMS needs to present a vivid picture of what mathematics is good for. Mobile phones and similar technology use a variety of mathematical ideas developed over the past century. Sadly, science funding in the UK has been leaning more and more against academic quality and toward subjects that promise short-term economic benefit. For whatever reason, funding bodies in the US (including the NSF but also the NSA, DARPA, and ONR) recognize much more strongly the long-term value of pure mathematics research.

LMS General Secretary Martin Hyland observed that EPSRC has moved £2 million from their core mathematics budget and combined it with £3 million from elsewhere in the EPSRC budget, to fund a call for proposals on *Mathematics Underpinning Digital Economy and Energy* (closing date 1 July 2010). In the long run, we have to convince EPSRC to protect their core mathematics budget. However, mathematicians who can connect their research in any reasonable way to computing (or energy) should apply for this money. The money is vast by mathematical standards, and these grants should be much easier to win than other big EPSRC grants.

Council noted with pleasure that Emmanuel Candes from Stanford would be the 2011 LMS Invited Lecturer. Candes helped to create the subject of compressed sensing, which combines harmonic analysis with multiple areas of statistics and engineering. He will give a week-long series of lectures in March 2011 at Cambridge.

Burt Totaro

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LMS Newsletter

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LMS MEETING AND RECEPTION AT THE ICM 2010

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Wednesday 25 August 2010, Hyderabad

MEETING: 17.00-19.00

Mechanisms for strengthening mathematics in developing countries

This discussion meeting will highlight three mechanisms for strengthening mathematics in developing countries: the Mentoring African Research in Mathematics project (MARM), the IMU Volunteer Lecturer Program, and the work of the International Centre for Theoretical Physics (ICTP) Trieste. In the MARM project the mentor, a mathematician from a developed country, works closely with a research group in a mathematics department in Africa, providing detailed support and advice. MARM is four years old and has set up thirteen mentoring partnerships. So far it is only a small-scale project, but the results are encouraging. In the IMU Volunteer Lecturer Program, intensive 3–4 week courses in mathematics at the advanced undergraduate or master's level are offered to universities in developing countries. ICTP has a long tradition of helping mathematics in developing countries using a wide variety of different approaches including visiting positions, support for networks, and the Associateships Scheme.

Questions to be addressed include:

- 1. What are the best mechanisms?
- 2. What principles should underlie them?
- 3. Are there effective ways in which different types of project can cooperate?
- 4. How can individuals and institutions contribute to these efforts?

About the panellists:

- Chair: Angus Macintyre, President of the LMS
- John Ball: member of the MARM Board
- Frank Neumann: an experienced mentor in the MARM scheme
- Wandera Ogana: Chair of the AMMSI Programme Committee
- Angel Pineda: active in the Volunteer Lecturer Program
- Ramadas Ramakrishnan: Acting Head of Mathematics at ICTP
- · Felix Shu: a mathematician at the University of Buea, Cameroon

MARM is run jointly by the International Mathematical Union (IMU), the African Mathematics Millennium Science Initiative (AMMSI), the International Centre for Mathematical Sciences (ICMS) in Edinburgh, and the London Mathematical Society (LMS). The organizer of the meeting is Stephen Huggett, LMS Programme Secretary.

An Ordinary Meeting of the LMS will be held just before the discussion starts, during which LMS members who have not already done so will have the opportunity to sign a page from the Membership Book (which dates back to 1865). Everybody is welcome.

RECEPTION: 19.00–20.00

The meeting will be followed by an LMS reception for its members and guests. Members who wish to attend the reception should apply for their free ticket from Isabelle Robinson (isabelle.robinson@lms.ac.uk) no later than Friday 30 July. The Society hopes to entertain as many as possible of its members who are attending the Congress, but numbers are limited by the capacity of the room.

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July10-NL.indd 3

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NEWSLETTER

LMS PRIZES 2010

The winners of the LMS prizes for 2010 were announced at the Society Meeting on 2 July. The Society extends its congratulations to these winners, and its thanks to all to nominators, referees and members of the Prizes Committee for their contributions to the Committee's work this year.

PROFESSOR KEITH WILLIAM (BILL) MORTON of the University of Oxford is awarded the **De Morgan Medal** in recognition of his seminal contributions to the field of numerical analysis of partial differential equations and its applications and for services to his discipline.

PROFESSOR JONATHAN KEATING, FRS, of the University of Bristol is awarded the **Fröhlich Prize** in recognition of his seminal work on the modelling of zeta-functions via random matrix theory.

PROFESSOR DUSA MCDUFF, FRS, of Barnard College, New York, is awarded the **Senior Berwick Prize** in recognition of the papers 'Symplectic embeddings of 4-dimensional ellipsoids' and 'Some 6-dimensional Hamiltonian S¹-manifolds' published in volume 2 of the Journal of Topology, 2009.

DR HARALD HELFGOTT of the University of Bristol is awarded a **Whitehead Prize** for his very varied contributions to number theory, including work on Möbius sums in two variables, integral points on elliptic curves, and in particular for his groundbreaking work on growth and expansion of multiplication of sets in $SL_2(\mathbb{F}_p)$.

PROFESSOR JENS MARKLOF of the University of Bristol is awarded a **Whitehead Prize** for his work on quantum chaos, dynamical systems and number theory.

DR LASSE REMPE of the University of Liverpool is awarded a Whitehead Prize for his work in

complex dynamics, in particular his research on the escaping set for entire functions.

DR FRANÇOISE TISSEUR of the University of Manchester is awarded a **Whitehead Prize** for outstanding research achievements in numerical linear algebra, including polynomial eigenvalue and structured matrix problems.

FELLOWS OF THE ROYAL SOCIETY OF EDINBURGH

The following mathematicians have been elected Fellows of the Royal Society of Edinburgh:

Honorary Fellow: Friedrich Ernst Peter Hirzebruch, Emeritus Professor of Mathematics, Max Planck Institute for Mathematics, Bonn

Fellow: Iain Grant Gordon, Professor of Mathematics, University of Edinburgh.

For further information visit the website at www.rse.org.uk/fellowship/elections.

FELLOWS OF THE ROYAL SOCIETY

Amongst those elected to Fellowship of The Royal Society in 2010 were:

- Philip Candelas, Rouse Ball Professor of Mathematics, Mathematical Institute, University of Oxford
- Ben Joseph Green, Herchel Smith Professor of Pure Mathematics, Department of Pure Mathematics and Mathematical Statistics, Centre for Mathematical Sciences, University of Cambridge
- Robert Charles Griffiths, Professor of Mathematical Genetics, Department of Statistics, and Fellow of Lady Margaret Hall, University of Oxford

Professor Ludwig Dmitrievich Faddeev, Chief Researcher, St Petersburg Branch of the Steklov Mathematical Institute, was elected a Foreign Member.

For further information visit the website at http://royalsociety.org/New-Fellows.

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LMS GRANT SCHEMES FOR CONFERENCES, VISITS AND RESEARCH GROUPS

Next Closing Date for Applications: 15 September 2010

Readers are reminded of the Society's Schemes to provide grants for the following activities:

- Conferences and postgraduate research conferences held in the UK (Schemes 1 and 8)
- Visitors to the UK (Scheme 2)
- Support of joint research groups (Scheme 3)
- Research in Pairs (formerly called "Collaborative Small Grants" – Scheme 4)
- International short visits with the main focus on Africa (Scheme 5)

Changes to the Schemes

Conference Grants

We would like to encourage new lecturers at UK universities to hold inaugural meetings celebrating their appointment and helping them to establish themselves in the network of mathematicians. There will be an opportunity to apply for funding for this type of meeting under the current Conference Grant Scheme. Further details will be announced in the September issue of the *Newsletter* and on the website.

Research in Pairs

The name of the scheme for Collaborative Small Grants (Scheme 4) has been changed to the more widely recognised title of Research in Pairs. The criteria for the scheme remain unchanged and can still include more than one collaborator. The maximum grant available under this scheme has increased from $\pounds 600$ to $\pounds 700$.

Applications received by **15 September 2010** 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.

For full details of these Schemes please see the Society's website (www.lms.ac.uk/grants). Queries regarding applications can be addressed to the Programme Secretary, Stephen Huggett (tel: 01752 586869, email: s.huggett@ plymouth.ac.uk) or the Grants Administrator, Sylvia Daly (tel: 020 7291 9971, email: sylvia. daly@lms.ac.uk, Wednesday–Friday) who will be pleased to discuss proposals informally with potential applicants and give advice on the submission of an application.

Information on other grant schemes operated by the Society, for education, the mathematics-computer science interface, and childcare, is also available at www.lms. ac.uk/grants.

ABEL PRIZE 2011

Call for nominations

The Abel Prize is an international prize for outstanding scientific work in the field of mathematics, including mathematical aspects of computer science, mathematical physics, probability, numerical analysis and scientific computing, statistics, and also applications of mathematics in the sciences.

The prize is meant to recognize contributions to mathematics and its applications of extraordinary depth and influence. Such work may have resolved fundamental problems, created powerful new techniques, introduced unifying principles or opened up major new areas.

The deadline for nominations is **15 September 2010**. Details on how to nominate can be found on the Abel Prize website at www. abelprisen.no/en.

NEWSLETTER

MATHEMATICS POLICY ROUND UP

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Mathematics, the new Parliament and the new Government

The new House of Commons has some notable absences in terms of long-term friends of STEM subjects with Evan Harris and Charles Clarke losing their seats and the retirement of Science and Technology select committee chair Phil Willis who has since been appointed to the House of Lords. But the new line-up of MPs does include several individuals with STEM backgrounds – and several with mathematics degrees. They include:

- Karen Bradley (Conservative) Staffordshire Moorlands
- Bill Esterson (Labour) Sefton Central
- Simon Wright (Lib-Dem) Norwich South
- A complete list of new MPs with some background information can be found at www. madano.com/view. There are at least two MPs with mathematics degrees who were re-elected:
- Julian Brazier (Conservative) Canterbury and Whitstable
- Tony Lloyd (Labour) Manchester Central New ministers who will be directly concerned with mathematics policy are:
- David Willetts (Conservative) Minister for Universities and Science, who serves in the Department for Business, Innovation and Skills. Mr Willetts attends Cabinet, but operates in the department under Secretary-of-State Vince Cable (Lib-Dem) who has a background in natural sciences and economics
- Michael Gove (Conservative) Secretary of State for Education at the Department for Education. Nick Gibb (Conservative) is Minister for Schools.

International Review of UK Mathematics

The EPSRC has published details of the forthcoming process: an international panel of leading experts will benchmark the strength of UK Mathematical Sciences research activity compared to other nations, highlight any gaps or missed opportunities and help inform the development of future strategies by EPSRC and other key stakeholders. The panel, comprising academics and industrialists from outside the UK, will visit a number of UK research groups and have access to a wide pool of experts and supporting data to help them reach their conclusions.

The research community are in the process of nominating internationally based individuals who possess the breadth of expertise and experience required to serve as panel members. The International Panel Chair will be Professor Margaret Wright, Courant Institute of Mathematical Sciences, New York University and former President of the Society for Industrial and Applied Mathematics. Professor Wright will present the panel's report at a Town meeting which will take place in early 2011 (date to be agreed). Institutions and other key stakeholders will be invited to submit evidence to the Review through a consultation exercise. Details will be published later. For further information visit the website at http://tinyurl.com/2v2263m.

Advanced Extension Award

In April, the Council for the Mathematical Sciences wrote to Ed Balls, at that time Secretary of State for Education, in support of the Advisory Council for Mathematics Education's position on the ongoing need for an Advanced Extension Award (AEA) type gualification in mathematics. AEAs were introduced in 2002, aiming to offer the top 10% of students an opportunity to attempt more stretching questions based on the standard A-level syllabus. This year, with the introduction of A* grades at A-level, most AEAs will discontinue with the exception of mathematics which will be withdrawn in 2013. Sir David Wallace, CMS chair, wrote: "The CMS feels that the introduction of the A* grade at

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ary dvipoced in 02, nts chvel of ontics vid eels at A-level (and the corresponding 'stretch and challenge' material to be introduced in some A-level units) will not be effective either in discriminating between the highest achieving candidates or inspiring and challenging the very best students; the retention of an AEA in mathematics is a necessary measure that the CMS supports... Moreover, the new grade promotes an approach to learning mathematics which does not reflect what is valued at degree level. Ultimately, it is the ability to 'think mathematically' - rather than merely master the content of a syllabus and complete standard questions to a very high level of accuracy - that is the best determinant of future success in mathematical sciences in Higher Education." To see the letter, visit www.cms.ac.uk/news.html.

Premium Salaries for Mathematics Postgraduates

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The review commissioned by Lord Mandelson and led by statistician and Director General for Science and Research at BIS Professor Adrian Smith published its findings in March. The review noted that postgraduate provision has had relatively little attention paid to it by policy makers, despite growing by 36% over the past 12 years and a quarter of students at UK universities being at postgraduate level (half of all overseas students in the UK are studying for postgraduate qualifications). In particular, the report noted there had been strong growth since 2002–3 in the number of people qualifying with master's in Mathematical Sciences and that, of those graduating in 2007-8, after six



"I will now announce the names of the graduates, in the order of the starting salaries offered to them." © Sidney Harris

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months, Mathematical Science postgraduates earned more than any other postgraduates, ahead of those with Business and Administrative studies and Medicine and Dentistry. For further information visit the website http://tinyurl.com/37d3vrg.

National STEM Centre seeks mathematician

The National STEM Centre is in the process of recruiting a mathematics specialist to replace Tom Button who is going to join the Further Mathematics Support Programme (FMSP). The National STEM Centre houses the UK's largest collection of STEM teaching and learning resources, in order to provide teachers of STEM subjects with the ability to access a wide range of support materials. The FMSP aims to ensure that any school student in the UK can access teaching to be able to sit Further Mathematics A-level. For further information

July10-NL.indd 9

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NEWSLETTER

visit the websites www.furthermaths.org.uk and www.nationalstemcentre.org.uk.

Researchers in Residence

The Research Councils' umbrella body Research Councils UK is inviting early-career researchers to join a scheme which will link them to local schools and colleges in a bid to develop a new generation of researchers who will continue to enhance the UK's global research reputation. Researchers in Residence is co-funded by the Wellcome Trust and the scheme is particularly keen to recruit representatives from the mathematical sciences. Its aim is "to engage young people with contemporary research to stimulate their interest and motivation in the social, physical, life and earth sciences and the humanities, and by doing so motivate them to take up careers in those areas, especially those where there are identified national shortages." At the same time, the scheme also aims "to provide researchers with the opportunity to develop and use effective communication, management and teamwork skills by working with young people." Applicants are encouraged from PhD and post-graduate researchers who are funded by either the Wellcome Trust or one of the Research Councils. For further information visit the website www. researchersinresidence.ac.uk.

> Caroline Davis Mathematics Promotion Officer

The aim of the Mathematics Promotion Unit (MPU) is to raise the profile of mathematics, seeking out opportunities for bringing mathematics, and the role and importance of mathematics, to the attention of policy-makers and advisers, the wider public and the media. The MPU would welcome suggestions from LMS members about significant new research, prizes or other developments which may be appropriate for wider publicity. Please contact the MPU officer at mpu@Ims.ac.uk.

New £27 Day Delegate Rate

From Summer 2010 De Morgan House is launching a new outstanding value DDR of only £27 per person. This includes room hire, flipchart, WiFi and catering of 3 refreshment breaks and lunch.



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CLIVE KILMISTER

Professor Clive W. Kilmister, who was elected a member of the London Mathematical Society on 17 March 1949, died on 2 May 2010, aged 86.

David Robinson writes: Clive spent his academic career at King's College London from 1950 until he retired in 1984. He was both an undergraduate and postgraduate student at Queen Mary College London. After his PhD, which was supervised by George McVittie, Clive became an Assistant Lecturer in the King's Mathematics Department. When Hermann Bondi arrived in 1954, Clive joined him and Felix Pirani in establishing the King's Gravitational Theory Group. This was one of the small number of centres which, in the 1950s, spearheaded the international renaissance of research into Einstein's theory of general relativity.

Clive was an applied mathematician who had broad interests. These included the history, philosophy and teaching of mathematics. At various times he was President of the British Society for the History of Mathematics, President of the British Society for the Philosophy of Science, President of the Mathematical Association and Gresham Professor of Geometry. In addition to his research papers Clive wrote books on many different topics ranging from classical dynamics and relativity to language and logic and Bertrand Russell. His PhD research was related to Arthur Eddington's later work and he had a lifelong interest in Eddington and his search for a fundamental theory. In the late 1970s Clive and his collaborator of many years Ted Bastin were founding members of the Alternative Natural Philosophy Association.

Clive was notably willing to undertake heavy administrative tasks both within and without King's. These he discharged amiably and efficiently. He was warmly regarded by students and colleagues. When he retired Clive was Professor of Mathematics and Head of the King's Mathematics Department.

MARTIN GARDNER

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It is with enormous regret that we report the death after a short illness of Martin Gardner on 22 May 2010, aged 95. He was well known to many mathematicians around the world, many of whom cite him as an early influence on their interest in mathematics.

Primarily a journalist and freelance author, Gardner wrote over 70 books, ranging from *The Annotated Alice* (1960) to some of the earliest books in the 'Skeptic Movement', including *Fads and Fallacies in the Name of Science* (1952).

Born in 1914, Martin earned a Bachelor's degree in Philosophy from the University of Chicago, having also studied history, literature and the sciences. This served him well when he joined the *Tulsa Tribune* as a journalist in 1937, a position where he no doubt honed his writing skills. A period in the US Naval Reserve further provided an opportunity on long watches to invent plots for stories, which he subsequently sold.

To mathematicians, however, he will remain best known for his 25-year stint writing the Mathematical Games column for the *Scientific American* magazine. His first article was on hexaflexagons, and subsequent columns ranged through topics as diverse as topology, fractals, aperiodic tilings, Conway's 'Life', and the work of M.C. Escher. Many of his books build on the work first published there.

Ron Graham once said: "Martin has turned thousands of children into mathematicians, and thousands of mathematicians into children."

He is survived by his two sons, three grandchildren, and a generation of recreational mathematics enthusiasts.

Dr C.D. Wright Director of Innovation and Engineering Denbridge Marine Ltd

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LMS SPITALFIELDS DAY Geometry & Algebra Friday 17 September 2010 Royal Society of Edinburgh, 22 George Street, Edinburgh 11.00 Sir Michael Atiyah (Edinburgh) The Hodge signature theorem: past, present and future 15.00 Friedrich Hirzebruch (Bonn) 125 years of the Schubert calculus 16.00 Tea and coffee served 16.30 Andrew Ranicki (Edinburgh) Aspects of quadratic forms in the work of Hirzebruch and Atiyah The Spitalfields Day celebrates the election in May 2010 of Professor Hirzebruch to an Honorary Fellowship of the Royal Society of Edinburgh. The meeting is supported by the LMS, the Edinburgh Mathematical Society, the Royal Society of Edinburgh and the International Centre for Mathematical Sciences. These lectures are aimed at a general mathematical audience, and should be accessible to graduate students. All interested, whether LMS members or not, are most welcome to attend this event, but are asked to register beforehand. Further information is available on the website: www.icms.org.uk/workshops/hirzebruch. THEROYAL Edinburgh MATHEMATICAL SOCIET OF EDINBURGH Society International Centre for The Royal Society of Edinburgh, Scottish Charity No. SC000241 Mathematical Sciences Scotland's National Academy, is Scottish Charity No. SC000470.

The London Mathematical Society believes that it is important for recent developments in specialist topics to be made known to the general mathematical community, and, in particular, to research students. It therefore provides funds to the organisers of these meetings so that they can provide a day of survey lectures, accessible to a general mathematical audience.

These days are called Spitalfields Days, in honour of the Spitalfields Mathematical Society, a precursor of the London Mathematical Society which flourished from 1717 to 1845.

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NEWS FROM THE INI

The Isaac Newton Institute encourages participation by UK mathematical scientists in its activities. Anyone from the UK can simply turn up at the Institute for up to two days without any kind of formal invitation. A brief email to info@newton.ac.uk beforehand telling when you intend to arrive will help the Institute provide you with some facilities. Visits lasting more than two days require an invitation. For full details visit the website at www.newton.ac.uk/ shortvisits.html.

The Institute strongly encourages its longterm participants from overseas to visit other UK institutions during their stay. Travel costs will be paid (but not accommodation, etc) for such visits on request. Do please alert the organisers of your local seminar series to this possibility, and direct them to the webpage listing those participants who are interested in receiving invitations: www.newton.ac.uk/programmes/ Speakers.html. Complete lists of invited participants are under each programme.

Early-career researchers are encouraged to apply to become Junior Members of the Institute. To be eligible you must be a Research Student or within five years of having received a PhD (with appropriate allowance for career breaks), and you must work or study in a UK University, academic institution or R&D group in industry or commerce. Junior Members may apply for special grants to allow them to attend Institute events. Do please advertise this opportunity to suitable candidates. Further details are available at www.newton.ac.uk/junior.html.

All seminars and workshops held at the Institute are now being recorded on video and placed online for free download; in time this will form a substantial resource for the UK mathematical community. All available seminars are listed at www.newton.ac.uk/ webseminars/. Feedback is particularly welcome.

The Correspondents' webpage (containing a list of all Correspondents, past bulletins and other information) is at www.newton.ac.uk/ correspondents.html. A list of programmes is at www.newton.ac.uk/programmes and forthcoming workshops at www.newton.ac.uk/ events.html. at

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As always, Sir David Wallace, the Director is very happy to receive comments or suggestions regarding the Institute and its activities, including possibilities for future programmes (david. wallace@newton.ac.uk). He, or the Deputy Director Dr Ben Mestel (b.mestel@newton. ac.uk), would be very pleased to visit your institution to talk about the Institute, what is happening at the Institute, and to hear your views.

NEWS FROM ICMS

Keith Ball, Astor Professor of Mathematics at University College London (kmb@math.ucl. ac.uk) will succeed John Toland (jft@maths. bath.ac.uk) as the International Centre for Mathematical Sciences (ICMS) Scientific Director on 1 September 2010.

ICMS has moved to new premises, 15 South College Street, Edinburgh, where it has a 108seat, well-equipped lecture theatre, audio-visual and break-out facilities for its workshop and research-in-groups activities.

Calls for proposals

ICMS is inviting proposals for ICMS Workshops to take place in 2011/12. There are two deadlines per year for workshop proposals, 31 October and 31 March. Proposals received before **31 October 2010** will be considered by the Programme Committee in February 2011. Potential organisers should contact Jane Walker, the Centre Manager at ICMS, to discuss timing and budgets before submitting a firm proposal (jane.walker@icms.org.uk). The Scientific Director will be pleased to advise on all aspects of proposals at any stage.

Proposals are also invited for the ICMS Research-In-Groups (RiGs) programme. This programme enables researchers to spend a short period of intensive research collaboration

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This d a ion at ICMS in Edinburgh, away from teaching and administration. The primary aim of this flexible programme is to support top-quality international research in the mathematical sciences. Therefore ICMS encourages adventurous proposals involving novel groupings of researchers, especially in interdisciplinary areas and involving overseas collaborators. Each year there are three deadlines for proposals: 30 April, 31 August and 31 December. Potential organisers should contact Jane Walker, the Centre Manager at ICMS, to discuss timing and budgets before submitting a firm proposal (jane.walker@icms.org.uk). The Scientific Director will be pleased to advise on all aspects of proposals at any stage Further information on both programmes is available at www.icms.org. uk/proposals.php.

Workshops – Summer 2010 and beyond

The following workshops have been approved by the programme committee:

- Symplectic geometry and transformation groups, 5–9 July 2010
- Reconstructing and understanding climate change over the last few millennia and the Holocene, 12–13 July 2010
- Multivariate approximation and interpolation with applications, 6–10 September 2010
- Dissipative PDEs in bounded and unbounded domains and related attractors, 20–24 September 2010
- The higher-genus sigma function and applications, 11–15 October 2010
- Birational geometry, 6-10 December 2010
- Torsors: theory and application, 10–14 January 2011
- The Kervaire invariant and stable homotopy theory, 15–29 April 2011
- Oscillatory integrals in harmonic analysis, 6–10 June 2011
- Signal processing with adaptive sparse structured representations, 26–30 June 2011
- New developments in non-commutative algebra and applications (on Skye), 26–30 June 2011

• Set theory (ICMS–ESF meeting), 4–8 July 2011 As it becomes available, further information

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will be posted on the ICMS website at www. icms.org.uk/forthcomingWorkshops.php.

EPSRC POSTDOCTORAL RESEARCH FELLOWSHIPS

EPSRC is offering Postdoctoral Research Fellowships in theoretical physics, mathematical sciences and cross-disciplinary interfaces to enable the most talented new researchers to establish an independent research career shortly after completing a PhD. The awards are for a period of up to three years and cover the salary costs of the Fellow, reasonable consumables, travel and subsistence. Applicants are encouraged to take the opportunity to gain a wider research experience by changing host organisations and to demonstrate very clearly their ability to operate as independent researchers. Postdoctoral fellowships can only be held at UK universities. and applications for fellowships at research council institutes and independent research organisations will not be accepted.

All proposals should be submitted under the Postdoctoral Fellowships Call. Include a covering letter as an attachment to your application if you need to identify whether you believe your proposal should be considered as a theoretical physics, mathematical sciences or a cross-disciplinary interfaces submission, and make reference to any identified signposted areas. It is EPSRC's ultimate responsibility to assign applications to the appropriate programme area, and proposals outside the specific remit of these topics will be rejected before peer review. Each programme has dedicated funds for this call and so proposals will be considered in competition with the other proposals within that programme and not across the whole fellowships call.

The closing date is **4 pm on 12 August 2010**. For further information visit the website at www.epsrc.ac.uk/funding/calls/open/Pages/ fellowships.aspx.

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NEWSLETTER

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V.G. Turaev

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QUANTUM INVARIANTS OF KNOTS AND 3-MANIFOLDS

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Alexander Kheyfits

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LONDON MATHEMATICAL SOCIETY MIDLANDS REGIONAL MEETING

Monday 6 September 2010

Chemistry Building C15, University of Nottingham

Speakers:

Erik Christensen (Copenhagen) Siegfried Echterhoff (Münster) Mikael Rørdam (Copenhagen)

Titles and timings to be confirmed.

These lectures are aimed at a general mathematical audience. All interested, whether LMS members or not, are most welcome to attend this event.

For further details, to register or to reserve a place at the dinner, email the organisers (Wilhelm.Winter@nottingham.ac.uk or Joachim.Zacharias@nottingham.ac.uk). The cost of the dinner will be approximately ± 30 , including drinks.

There will be a subsequent workshop on *C*-algebras,* with special emphasis on classification, from 7 to 10 September. Further details will be posted on: www.maths.nottingham.ac.uk/personal/pmzww/wilhelm_winter/LMS_Regional_Meeting.html.

There are funds available to contribute in part to the expenses of members of the Society or research students to attend the meeting and workshop. Requests for support, including an estimate of expenses, may be addressed to the organisers.

INDUCTION COURSE FOR NEW LECTURERS

The Maths, Stats & OR Network will once again be running its two-day Induction Course for lecturers new to teaching Mathematics and Statistics within Higher Education. The Induction Course will take place at the School of Mathematics, University of Birmingham from 16 to 17 September 2010. The course has been running since 2001, and over 200 new academic members of staff have benefited from attending in this time. In the past, attendance has been recognised as contributing towards some introductory institutional programmes in learning and teaching for new staff (certificated or otherwise and depending on institution).

Sessions will cover approaches to teaching mathematics including lectures and example classes, as well as using technology to enhance education and an introduction to education research. Further details can be found at: http:// mathstore.ac.uk.

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NEWSLETTER

MATHEMATICAL SOCIETY OF JAPAN PRIZES

The **Spring Prize 2010** was awarded to Professor Osamu Iyama (Nagoya University) for his original and influential contribution to Representations of finite-dimensional algebras and Cohen–Macaulay modules.

The Outstanding Paper Prize 2010 was awarded to Shigeaki Koike and Andrzej Swiech for 'Weak Harnack inequality for fully nonlinear uniformly elliptic PDE with unbounded ingredients', J. Math. Soc Japan 61 (2009) 723–755, and to Kenichi Ohshika for 'Constructing geometrically infinite groups on boundaries of deformation spaces', J. Math. Soc. Japan 61 (2009) 1261–1291.

The Algebra Prize 2010 was awarded to Nobuo Tsuzuki (Tohoku University) for his fundamental and outstanding contribution to the theory of *p*-adic cohomology and *p*-adic differential equations and to Hiroaki Terao (Hokkaido University) for his fundamental and outstanding contribution to the algebraic and geometric theory of hyperplane arrangements, connecting various branches of modern mathematics, including algebraic geometry, topology and Lie groups.

HUMBOLDT RESEARCH AWARD

Professor Charles M. Elliott (Mathematics Institute, University of Warwick) has been elected the recipient of a Humboldt Research Award. This award is conferred in recognition of lifetime achievements in research. In addition, the awardee is invited to carry out research projects of his own choice in cooperation with specialist colleagues in Germany. For further information visit the website at www.humboldt-foundation.de/web/7806. html.

NEWS FROM THE IMU Editorial

The single most important event of the International Mathematical Union this year is, of course, our Congress in Hyderabad. But there is also an adjacent, but different event of great importance: the General Assembly (GA) in Bangalore from 16 to 17 August 2010.

The GA meets once in every four years, traditionally just before the Congress. It performs many tasks vital for the functioning of the Union. Some of these are natural (and traditional). The GA has to elect the new leadership, including the next President, Vice-Presidents, Secretary, and members of the Executive Committee (EC). Candidates for these positions have been found by the Nominating Committee, which is separate from the Executive Committee and was headed by our former President David Mumford.

The other main body to be elected is the Commission for Developing Countries (CDC). In this form, this is a new Commission, whose charge is a combination of the charges of the former Commission for Development and Exchanges (CDE) and the Developing Countries Strategy Group. We hope that having a single commission to deal with all issues in connection with developing countries makes the work more efficient and decreases the possibility of important issues falling between the cracks.

There are other items on the agenda which are traditional: among others, the GA has to approve the site of the 2014 Congress, after hearing a presentation by the proposed organizers from Seoul, Korea. The EC will also report on successes (and also failures) in its activities: new prizes, a new fundraising organization, new memberships, cooperation with the International Commission on Mathematical Instruction (ICMI), with UNESCO, and with other organizations.

But I want to say more about one agenda item that is extremely important: the establishment of a stable office. The last General Ass cha ity be fur sta pos Sec the GA leq ter cul and The pro L tha do off for sea and ٦ I w the ing Aft det ous Aft ists Tor e A Inst (W visi app deo and est by Of E oth GA

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nda aberal Assembly (Santiago de Compostela, 2006) charged the EC with looking into the possibility of setting up such an office. It is natural to be skeptical about this: after all, the IMU has functioned very well over many years while staying as informal and un-bureaucratic as possible, just having a small office where the Secretary is located. But looking deeper into the issue made it clear that the charge by the GA was justified. With stricter and stricter legislation targeting money laundering and terrorism, it becomes more and more difficult to move the office from one continent to another any time a new Secretary is elected. There was also a pressing need to solve the problem of secretarial help for CDC and ICMI.

Looking deeper into the issue also revealed that, unfortunately, the finances of the Union do not allow the rental and staffing of a new office. Therefore we turned to the community for help, based on the idea that a larger research institute could, perhaps, find office space and secretarial capacity to spare for the IMU.

The reply was overwhelming, and I must say I was moved by this expression of support for the activities of IMU. We got 12 replies, expressing serious interest in hosting the stable office. After one round of discussions, we received six detailed proposals, all of which were very generous and each of which could provide a solution. After a lot of discussions, we selected three 'finalists': in alphabetical order, the Fields Institute in Toronto, Instituto Nacional de Matemática Pura e Aplicada (IMPA) in Rio, and the Weierstrass Institute for Applied Analysis and Stochastics (WIAS) in Berlin. All three possible sites were visited by the 'Stable Office Committee' appointed by the EC. The EC did not want to decide between these three outstanding offers. and will put it to the GA to decide whether to establish a stable office and, after presentations by the bidding institutions and by the Stable Office Committee, to select the location.

Establishing our Stable Office, along with other important decisions to be made by the GA, should provide proper conditions for the IMU to fulfil its tasks in a world where mathematics plays an ever-increasing role.

> László Lovász IMU President

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Mathematics reaching out to the public

The Executive Organising Committee (EOC) of the ICM is aware of the importance of mathematics reaching out to the public. It would like to recognize outstanding efforts made in that direction in a fitting manner. Toward this end it has instituted a one-time international prize of 1,000,000/- (Indian) Rupees (approximately US\$20,000) for outstanding contribution to public outreach for mathematics by an individual. The prize is to be announced and awarded at ICM in Hyderabad, India.

Chern Medal

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At the ICM the Chern Medal, named after S.S. Chern, a towering figure in geometry in the twentieth century, is to be awarded for the first time to an individual whose lifelong outstanding achievements in mathematics warrant the highest level of recognition.

The above items are taken from the 41st issue of the IMU electronic newsletter *IMU Net* (see www.mathunion.org/ IMU-Net).

MERTON CHOOSES A NEW WARDEN

The Governing Body of Merton College, Oxford has announced its intention to elect Sir Martin Taylor, FRS, to the Wardenship from 1 October 2010 in succession to Professor Dame Jessica Rawson. Sir Martin is currently Professor of Pure Mathematics at the University of Manchester. He was Vice-President and Physical Secretary of the Royal Society from 2004 to 2009 and President of the London Mathematical Society from 1998 to 2000.

Merton College, the first fully self-governing College in the University, was founded in 1264 by Walter de Merton, sometime Chancellor of England and later Bishop of Rochester.

July10-NL.indd 19

NEWSLETTER

LMS SUPPORT FOR MATHEMATICS IN AFRICA

International Short Visits

Each year the Society awards a number of grants to support short research visits under this scheme.

This year's awards include grants for Dr Kunle Babalola and Dr Kamil Rauf, both from the University of Ilorin, Nigeria, to visit the UK in August 2010. Dr Babalola will visit Professor Alan Beardon (Cambridge), Dr Tom Caroll (Cork) and Dr Zag Coelho (York) and Dr Rauf will visit Dr Joel Feinstein (Nottingham) and Dr Simon Eveson (York).

These grants supplement a project set up between Dr B. Everitt (York) and the University of Ilorin, Nigeria under the Mentoring African Research in Mathematics (MARM) scheme. In general, the International Short Visits scheme and support for AMMSI conferences (see below) complement the Society's commitment to the MARM project. (For more information on the MARM project and for details of a MARM meeting at the ICM, see page 3).

Under its International Short Visits scheme, the

Society also awarded grants to Dr J. Zacharias and Dr J. Feinstein (Nottingham) and Dr A. Zsák (Lancaster) to lecture at a Workshop on Banach Algebras and Operators at the

National Centre for Mathematics in Abuja, Nigeria which took place in April 2010.

Dr P. Schuster at Leeds received a grant for a visit by Professor I. Yengui from the Faculty of Sciences of Sfax, Tunisia, in April 2010. It is hoped that this will initiate a long-term research collaboration between Sfax and Leeds. Dr B. Schroers at Heriot-Watt was awarded a grant for a visit by Mr P.K. Osei from Ghana during May-July 2010. Mr Osei hopes to visit the Mathematics Department at Nottingham and DAMTP at Cambridge during his stay in the UK.

African Mathematics Millennium Science Initiative (AMMSI)

The Society also awards grants to contribute to the travel costs of postgraduates attending conferences organised, or supported, by the African Mathematics Millennium Science Initiative (AMMSI). AMMSI is building mathematical infrastructure and networking in sub-Saharan

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ute ing the tiaical ran Africa, and offers graduate assistantships, visiting lectureships, and conference support for the benefit of advanced students and young researchers in the mathematical sciences. Grants awarded last year supported the following conferences:

- Eastern Africa Summer School on Linear Algebra: From Bases to the Google Algorithm, at Bandari College, Mombasa, Kenya, 1–14 December 2008
- SAMSA Conference 2008 on Mathematics Research in Southern Africa, at the Eduardo Mondlane University, Maputo, Mozambique, 25–28 November 2008
- Twelfth Seminar GIRAGA, in Cotonou, Bénin, 3–12 December 2008
- First Buea International Conference on the Mathematical Sciences and workshop on Mathematical Biology, Buea, Cameroon, 12–16 May 2009
- École CIMPA–Ouaga 2009: Théorie de l'indice et interactions avec la physique, in Ouagadougou, Burkina Faso, 21–29 May 2009
- US-Canada-Africa Advanced Study Institute and Workshop on Economic Epidemiology, at Makerere University, Kampala, Uganda, in July and August 2009

African Institute for Mathematical Sciences (AIMS), Cape Town, South Africa

The African Institute for Mathematical Sciences (AIMS) is a centre for education and research in Cape Town, South Africa. AIMS was established in 2003 as a partnership project of the following six universities: Cambridge,



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Visitors from Kumasi, Ghana, in Leicester as part of the MARM programme: (left to right) Prof. I. Dontwi (KNUST), Dr. F. Neumann (Leicester), I. Owusu-Mensah (KNUST) and W. Obeng-Denteh (KNUST)

Cape Town, Oxford, Paris Sud XI, Stellenbosch, and Western Cape. The goals of AIMS are:

- To promote mathematics and science in Africa
- To recruit and train talented students and teachers
- To build capacity for African initiatives in education, research, and technology

The LMS has been providing support to AIMS since it was set up in 2003. This is in the form of a grant which is used to help students from countries in Africa to attend AIMS by covering their travel costs.

Further information can be found on the following websites:

www.lms.ac.uk/grants/index.html www.lms.ac.uk/grants/MARM.html www.ammsi.org www.aims.ac.za

Sylvia Daly Grants Administrator 21

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NEWSLETTER

EMS COMMITTEE FOR THE DEVELOPING COUNTRIES

The Committee for the Developing Countries (CDC) is one of eleven Committees of the European Mathematical Society (EMS). In the course of our work in developing countries in Africa, Asia and Latin America we have come across a number of talented and promising young mathematicians. Partly under supervision of our programs they have successfully completed their Master of Science degrees and should now proceed to doctoral studies. Through CDC they are now looking for host institutions willing to enrol them in their PhD programs, and possibly help them to find at least partial financing. At the same time there are some talented young students who have been able to complete PhD degrees at their home universities. In our experience those students, in spite of their ambitions and enthusiasm, are not yet ready to be thesis advisors for younger colleagues. They need to complete their initiation to research, to mature as mathematicians and also to have a chance to broaden their vision of mathematics in general. This brings us to our second appeal to the mathematical community: creating possibilities of postdoc positions for young researchers from developing countries.

If your department would be interested in assisting at least one of these young mathematicians from developing countries, please contact Tsou Sheung Tsun (University of Oxford, tsou@ maths.ox.ac.uk), Michel Waldschmidt (Université Paris VI, miw@math.jussieu.fr) or Paul Vaderlind (Stockholm University, paul@math.su.se) or any other CDC member.

The committee consists of about ten members, most of whom are engaged in development work in their capacity as heads of various such projects, e.g. CIMPA (France), ISP (Sweden), IWR (Germany), and are also active in other committees for developing countries around the world, notably within IMU, ICIAM, ICTP, LMS and a number of national mathematical Societies and Academies.

The main objective of CDC is to assist developing countries at the following levels:

- Mathematics curriculum development for schools and for universities.
- Cooperation with local staff in conducting MSc and PhD programs; holding special courses in various areas of mathematics in which there is no local expertise.
- Helping to build up libraries through donations from colleagues in developed countries; supplying mathematical literature upon request by institutions and/or individual researchers in developing countries; negotiating with publishers on special book rates for developing countries.
- Helping to build up regional centres and networks of excellence: these are centres directly attached or connected in part to universities, and which provide expertise in areas and on levels in which regional universities are in need.
- Providing information about where students from developing countries (who already have an MSc) can do their PhD, and what possibilities for PhD grants exist. At the same time, in order to avoid a brain drain, as much as possible, CDC will support efforts to build up PhD programmes in developing countries according to international standards (regional centres of excellence could serve this purpose).
- Providing information on postdoc positions for young researchers from developing countries and promoting the creation of such positions.
- Mobilising funds for junior and senior researchers to attend conferences in developing countries, and also helping (both on an academic and financial level) to organise conferences in developing countries.
 More information can be found on www.

euro-math-soc.eu/comm-develop.html. On behalf of the EMS-CDC.

> Tsou Sheung Tsun Michel Waldschmidt Paul Vaderlind

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Further information and application forms are available from the website at: www.newton.ac.uk/ programmes/KIT/kitw01.html. Closing date for the receipt of applications is **31 July 2010**.

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NEWSLETTER



Conformal Differential Geometry

Baum, Helga / Juhl, Andreas Humboldt-Universität Berlin, Germany

Conformal invariants (conformally invariant tensors, conformally covariant differential operators, conformal holonomy groups etc.) are of central significance in differential geometry and physics. Well-known examples of such operators are the Yamabe-, the Paneitz-, the Dirac- and the twistor operator. The aim of the seminar was to present the basic ideas and some of the recent developments around Q-curvature and conformal holonomy. The part on Q-curvature discusses its origin, its relevance in geometry, spectral theory and physics. Here the influence of ideas which have their origin in the AdS/CFT-correspondence becomes visible.

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The part on conformal holonomy describes recent classification results, its relation to Einstein metrics and to conformal Killing spinors, and related special geometries.

2010, Approx. 165 p., Softcover EUR 19,95 / GBP 17.99 / CHF 34.90 ISBN 978-3-7943-9908-5 OWS — Oberwolfach Seminars, Vol. 40

Dynamical Systems with Applications wing Maple Stophen Lynch Stephen Lynch

Dynamical Systems with Applications using Maple™

Lynch, Stephen

Manchester Metropolitan University, UK

Since the first edition of this book was published in 2001, Maple™ has evolved from Maple V into Maple 13. Accordingly, this new edition has been thoroughly updated and expanded to include more applications, examples, and exercises, all with solutions; two new chapters on neural networks and simulation have also been added. There are also new sections on perturbation methods, normal forms, Gröbner bases, and chaos synchronization.

The work provides an introduction to the theory of dynamical systems with the aid of Maple. The author has emphasized breadth of coverage rather than fine detail, and theorems with proof are kept to a minimum. Some of the topics treated are scarcely covered elsewhere. Common themes such as bifurcation, bistability, chaos, instability, multistability, and periodicity run through several chapters. The book has a hands-on approach, using Maple as a pedagogical tool throughout. Maple worksheet files are listed at the end of each chapter, and along with commands, programs, and

output may be viewed in color at the author's website. Additional applications and further links of interest may be found at Maplesoft's Application Center.

2nd ed., 2010, XVIII, 500 p. 216 illus., Softcover EUR 59,95 / GBP 53.99 / CHF 93.50 ISBN 978-0-8176-4389-8

EUR prices are net prices subject to local VAT. All prices are recommended and subject to change without notice

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EUROPEAN-LEVEL ORGANISATIONS FOR WOMEN MATHEMATICIANS

There are several organisations and committees supporting women mathematicians in Europe. The first is the membership organisation European Women in Mathematics (EWM), www. math.helsinki.fi/EWM. Founded in 1986, EWM has several hundred members in over 30 European countries. Its executive consists of a convenor, currently Marie-Francoise Coste Roy (Rennes, France) and a standing committee. EWM holds a biennial scientific conference which also serves as its general meeting. In 2007 this took place in Cambridge and in 2009 it moved to Novi Sad, Serbia, where the EMS lecturer Ingrid Daubechies gave a series of three talks. Ingrid's lectures may be found on the Women in Mathematics blog http://ewm2009.wordpress.com/, along with a new EWM promotional video containing some lively and thought-provoking interviews alongside some background about EWM. Watching the video is a good way to get a taste of the unique atmosphere of EWM meetings.

The next EWM general meeting will be in CRM Barcelona from 5 to 9 September 2011 and we encourage anyone interested to come. EWM also sponsors or co-organises other interim activities. Upcoming is the ICM satellite meeting ICWM 2010 to be held in Hyderabad from 17 to 18 August, immediately before the ICM, see www.iitk. ac.in/icwm2010/. Participants in ICWM will have the opportunity to meet in a relaxed atmosphere and attend background talks about some of the topics to be addressed in the ICM itself. There will also be a discussion forum entitled *Women mathematicians around the world* with panellists from five continents:

EWM is independent from, but has links to, its sister organisation the Association for Women in Mathematics (AWM) based in the United States. It also has close links to various national level organisations, for example the LMS Women in Mathematics Committee and Femmes et Mathématiques in France. To join EWM in the UK, either go to the EWM website above or contact the UK coordinator Jennifer Scott (jennifer.scott@ stfc.ac.uk).

Readers may also be interested in the Proceedings of the Cambridge EWM meeting which can be ordered at www.worldscibooks.com/ mathematics/7352.html. This nicely produced volume includes invited mathematical surveys from some of the keynote speakers and a final section comprising several articles, biographical and otherwise, about women mathematicians in Cambridge.

The second organisation for women mathematicians in Europe is the EMS Women in Mathematics Committee (http://womenandmath. wordpress.com/past-activities) currently chaired by Dušanka Perišić (Novi Sad). The function of this committee is to undertake actions to help and promote women mathematicians in Europe, and to act as an umbrella body better to integrate the work of the various other committees and organisations in European countries with similar aims. Past activities have included gathering statistics on the numbers of women mathematicians in different countries and setting up the Women in Mathematics blog referred to above (which can also be accessed from the EWM website). The committee works in close contact with EWM, providing a link between them and the EMS, and is currently initiating collaboration with the European Research Institutes on Mathematics (ERCOM).

Finally, in 2008, EWM and the EMS Women in Mathematics Committee jointly set up the EWM/ EMS Scientific Committee (womenandmath. wordpress.com/emsewm-scientific-committee). The members of this committee are twelve distinguished women mathematicians, among them Dusa McDuff, Nina Uraltseva and Michèle Vergne. Currently chaired by Ulrike Tillmann (Oxford), the main function of this committee is to advise on scientific programmes and speakers for EWM and other related events.

Caroline Series Vice-chair, EMS Women in Maths Committee

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NEWSLETTER

LONDON MATHEMATICAL SOCIETY

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POPULAR LECTURES 2010

(Institute of Education, London – Wednesday 30th June) University of Birmingham – Wednesday 29th September

Dorothy Buck Imperial College, London

Modelling the Circle of Life: How Maths Untangles Knotty DNA Questions

Come and see how mathematically understanding knots, like the kind in your shoelaces, has helped us to understand DNA better.



Matt Parker QMUL

Clutching at Random Straws

Did aliens help prehistoric Britons found the ancient Woolworths civilization? Matt will look at how seemingly incredible results can actually be meaningless random patterns.

BIRMINGHAM: Commences at 6.30 pm, refreshments at 7.30 pm, ends at 9.00. Admission is free, with ticket. **Apply by 24th September.**

Tickets available from Lee-Anne Parker, London Mathematical Society, De Morgan House, 57-58 Russell Square, London, WC1B 4HS (email: leeanne.parker@lms.ac.uk). A stamped addressed envelope would be appreciated.

The lectures are intended to be suitable for a general audience and no specific mathematical knowledge will be assumed. Although the talks are not primarily intended for professional mathematicians, everyone is welcome and some members may wish to apply for tickets for friends and relatives.

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BRITISH SCIENCE FESTIVAL

The 2010 British Science Festival will take place in Birmingham from 14 to 19 September 2010. The Mathematical Sciences Events are:

Wednesday 15 September:

 π Hunting (Tony Mann, Robin Wilson, Mark McCartney, Noel-Ann Bradshaw)

For thousands of years, people have been obsessed with π and tried various ingenious methods to calculate its digits. Come and explore the amazing history of π .

Friday 17 September:

75 Years of Radar (Chris Budd, Colin Wright, Cathryn Mitchell)

Radar was invented 75 years ago. It made a vital difference to winning the war and continues to keep us safe in the air (as well as catching us if we are speeding). The session will describe the history, current use and future possibilities of radar.

How risky is it, and how ignorant are we? (David Spiegelhalter)

Lecture by the President of the Mathematical Sciences Section of the Festival, followed by a Reception sponsored by the Royal Statistical Society

Uncertainty may be due to unpredictability or ignorance, and often there's a messy mixture of the two. The scientific approach to all uncertainty is through probability theory. Find out how uncertainty can be quantified, whether it's about football results, swine flu or climate change.

Geometry of the Industrial Revolution (Chris Sangwin)

The Industrial Revolution completely changed the world, but it would not have been possible without Mathematics. Have a closer look at the Mathematics that was vital to the birth of our modern industrial word.

Saturday 18 September:

The Maths and Computing Magic Show (Peter McOwan)

Witness an amazing magic show and sneak behind the scenes to explore the maths and computing powering the tricks. An interactive magic stage show with plenty of volunteers from the audience. The tricks are performed and then the maths and computing principles behind each are explored.

Sunday 19 September:

The Serious Side of Scientific Trivia (Robert Matthews)

Curiosity-driven science and mathematics may not initially be perceived as relevant or useful to society. However this talk will discuss many important examples of curiosity-driven science which have had major impact. In addition, the results of the Great British Knot Experiment will be revealed.

Maths on the Street

Organizer: Sara Santos (Royal Institution); with Matt Parker and other Buskers

Throughout the week of the British Science Festival, teams of Maths Buskers will take to the streets to show the general public just how amazing Mathematics can be!

For full details visit www.britishsciencefestival. org or call 0207 019 4947.

QUEEN'S BIRTHDAY HONOURS

- Noel Lloyd, Vice-Chancellor, Aberystwyth University, was awarded a CBE for services to Higher Education in Wales
- Jerry Cowhig, Managing Director, Institute of Physics Publishing, was awarded an MBE for services to Science
- Frank Duckworth, was awarded an MBE for services to the Royal Statistical Society and Cricket
- Tony Lewis, was awarded an MBE for services to Mathematics and Cricket

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NEWSLETTER

BRITISH LOGIC COLLOQUIUM

The annual meeting of the British Logic Colloquium will take place from 2 to 4 September 2010 at the School of Computer Science, University Birmingham. The aim of this meeting is to present current topics in all areas of logic. The following invited speakers have confirmed that they will give talks:

- Mirna Dzamonja (University of East Anglia)
- Jeffrey Ketland (University of Edinburgh)
- Alexander Kurz (University of Leicester)
- Luke Ong (University of Oxford)
- Ulrike Sattler (University of Manchester)
- Anton Setzer (University of Swansea)
- Colin Stirling (University of Edinburgh)
- Philip Welsh (University of Bristol)
- Alex Wilkie (University of Manchester) Contributed talks of 30 minutes' length are also solicited. A limited number of grants for UK PhD students are available. For further details visit the website at http://events.cs.bham.ac.uk/BLC2010. BLC 2010 is supported by an LMS Conference grant and the British Logic Colloquium.

EUROPEAN SYMPOSIUM ON ALGORITHMS

The 18th European Symposium on Algorithms (ESA 2010) will take place at the University of Liverpool from 6 to 8 September 2010. The symposium covers research in efficient algorithms and data structures in computer science, discrete applied mathematics, operations research and mathematical programming. The symposium has two tracks:

- Design and mathematical analysis of algorithms
- Real-world applications, engineering and experimental analysis of algorithms

Each day will start with a one-hour invited talk followed by four sessions for presentations of contributed research. The invited speakers are:

- Artur Czumaj (Warwick University, UK) Local graph explorations and fast property testing
- Herbert Edelsbrunner (Duke University, USA) The robustness of level sets
- Paolo Ferragina (University of Pisa, Italy) Data structures: time, I/Os, entropy, Joules

The symposium will be held as part of ALGO 2010, in conjunction with several satellite workshops: WABI (Workshop on Algorithms in Bioinformatics), ATMOS (Workshop on Algorithmic Approaches for Transportation Modelling, Optimization, and Systems), WAOA (Workshop on Approximation and Online Algorithms).

ESA 2010 is supported by an LMS Conference grant and sponsored by the European Association for Theoretical Computer Science. Further information is available on the website http://algo2010.csc.liv.ac.uk/esa.

CETL-MSOR CONFERENCE 2010

The CETL-MSOR Conference 2010 on 2020 Vision: Maths and Stats in Higher Education over the next 10 years will take place at The University of Birmingham from 6 to 7 September 2010.

The aim of this conference is to promote, explore and disseminate effective practice and research findings in Mathematics and Statistics teaching, learning, support and assessment. The conference will appeal to all those teaching Mathematics, Statistics or Numeracy in higher education, whether this is to specialist mathematics students or students studying components of mathematics within their degree programmes (such as bioscience, chemistry, computer science, economics, engineering, nursing, physics, psychology, social work, etc.). The conference will explore the following themes:

- Assessment
- The independent learner

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- Mathematics, mind and brain
- Evaluating support centres
- Higher level and postgraduate teaching
- Outreach and public engagement
- Innovative practice Booking deadline for the full conference is
 6 August 2010. Further details can be found
- at http://mathstore.ac.uk/conference2010.
 MODELS IN POPULATION

DYNAMICS AND ECOLOGY

A conference and LMS workshop on *Models* in Population Dynamics and Ecology 2010: Animal Movement, Dispersal and Spatial Ecology will take place at the University of Leicester from 1 to 3 September 2010.

The conference will focus on the spatial aspect of population dynamics and ecosystem functioning and is expected to explore the corresponding processes and mechanisms from the micro-scale of individual movement to the macro-scale of population dispersals, with applications to metapopulations, regional dynamics and geographical invasions. It is also expected to explore similarities between the modelling techniques traditionally applied in ecology and those used in other life sciences such as cell dynamics and tumour growth with the purpose to enhance interdisciplinary approaches and to stimulate further advances in mathematical ecology and population dynamics. The following issues will be of particular interest:

- Mathematical theory of random motion, with application to individual animal movement
- Mathematical theory of nonlinear waves, with applications to biological invasions and spread of epidemics
- Interplay between deterministic and stochastic approaches (e.g. SPDE based) to modelling population dynamics, with an emphasis on the ecological pattern formation

 Mathematical models of collective dynamics, especially hybrid models arising as a result of the interplay between agents of different origin and/or between processes acting on different spatial scales

The talks are expected to be mostly grouped around these subject areas. However, the organisers are ready and willing to consider any submission of a potentially high scientific merit which does not exactly fall into the list above. The Honorary Lecture will be given by Karl Hadeler (ASU Tempe/ University of Tübingen). The plenary speakers are:

Nick Britton (Bath, UK)

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- Alan Hastings (Davis, USA)
- Helen Byrne (Nottingham, UK)
- Richard Law (York, UK)
- Horst Malchow (Osnabrück, Germany)
- Nanako Shigesada (Kyoto, Japan)
- Igor Sokolov (HU Berlin, Germany)

In order to encourage wide participation of PhD students as well as early-career researchers, there will be a poster session organised during the conference. For UK research students, partial financial support is possible to contribute to the travel or accommodation expenses.

To register email sp237@le.ac.uk (Sergei Petrovskii) with a title and a brief abstract of your presentation (one page at most, in a camera-ready format, either pdf or Word), clearly indicating whether it is intended to be a talk or a poster. Also, in case there is more than one author, indicate very clearly who is actually going to present the work.

The registration and abstract submission deadline is 1 June 2010; however, lastminute registration may be possible subject to space availability. There will be a small registration fee of £50 to be paid in cash upon arrival. The workshop is supported by an LMS Conference grant and sponsored by the University of Leicester.

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MATHEMATICAL SOCIETY

NEWSLETTER



Participants in the two-day Women in Mathematics meeting

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WOMEN IN MATHEMATICS TWO-DAY MEETING Report

The Women in Mathematics Day is an annual event organised by the LMS, usually held at De Morgan House. For this year's meeting, funds were obtained from the UK Resource Centre for Women in SET to follow the WiM day with an additional day of talks, discussion groups and seminars. The two-day meeting was held in the congenial surroundings of the Isaac Newton Institute for Mathematical Sciences in Cambridge.

To start things off on Thursday morning, Julia Gog from the University of Cambridge gave a talk entitled Disease dynamics: From equation to experiment (and back). This described her long-term interdisciplinary collaboration with experimental biologists and physicists, giving both interesting results and lots of advice on how to work successfully in such a way. The remainder of the morning session consisted of two wonderful talks, both from mathematicians from the University of Bristol. First up was Hinke Osinga, who explained

The mystery of chaos in the Lorentz equations with great enthusiasm; she left the audience with a real feel for what was going on. Next came Nina Snaith, whose talk Random Matrices and Riemann zeros came back to the benefits of interdisciplinary working, although this time it was applying techniques from physics to important questions in number theory.

During lunch, there was a poster session, where the participants were treated to a beautiful display of interesting and varied posters. By popular vote, Amy Mason from the University of Bristol was declared the winner (see the following article on page 32)

Thursday afternoon saw six shorter contributed talks, on topics ranging from Number Theory, Financial Mathematics and Quantum Mechanics to Optimisation problems and wave propagation. The last speaker, Nathalie Vriand, described her PhD work on booming sand dunes and ensured everyone was awake before

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onom cics on the oed nes ore tea by playing amazing videos of this bizarre natural phenomenon and handing around samples of types of sand to shake, so we could experience the difference first hand.

After tea, the European Mathematical Society Women in Mathematics Committee was introduced. Caroline Series did the honours and also mentioned that this meeting was the first time that a faceto-face meeting of the committee had occurred, and extended thanks to the organisers for making this possible. Each of the members present (Caroline Series, Bodil Branner, Elena Fernandez and Dušanka Perišić) gave an interesting presentation on some topic concerning Women in Mathematics. A very full and enjoyable day was rounded off by a reception hosted by the Isaac Newton Institute and then dinner at Newnham College.

University of Oxford started proceedings with a talk on population genetics and probability theory entitled The pain in the torus: modelling populations in a spatial continuum. Most of the rest of the day was occupied with more practical matters. First was a session on initiatives for women in mathematics, with presentations from UKRC, Ben Mestel from the Isaac Newton Institute and Gwyneth Stallard from the LMS. The next session was devoted to funding opportunities for postdocs and bevond. This was very well received, with lots of questions and discussion. After lunch, the participants split up into various smaller discussion groups, to talk over issues such as balancing work and family, why do mathematics at all and what is good practice in a mathematics department. The only gripe about these groups is that it was not possible to be in more than one at a time! Finally, Bodil Branner gave the last talk of

On day two, Alison Etheridge from the



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NEWSLETTER

the day, with the title Why mathematics continues to fascinate me – surgery in holomorphic dynamics in particular. This was a great ending to two informative and stimulating days.

> Sara Munday St Andrews University

The videos of the principal speakers and the slides of the career-related talks are available to download/ stream from the INI website at www.newton.ac.uk/ programmes/WIM/wimw01p.html

WIM POSTER COMPETITION

The Women in Mathematics Day was held as a two-day event at the Isaac Newton Institute on 15 and 16 April 2010. A poster competition was held as part of the event and this was won by Amy Mason from Bristol University.

Amy Mason writes: The aim of my work is to gain new insights into the properties of *L*-functions by using their connections with Random Matrix Theory. Random Matrix Theory was developed by physicists trying to model the quantum states of complicated atomic nuclei, while *L*-functions arise from almost every area of number theory. The surprising link between these two areas of mathematics (usually considered entirely separate) has yet to be fully proven, but the numerical evidence indicates a definite connection.

The simplest *L*-function to consider is the Riemann zeta-function, a complex function with its nontrivial zeros contained in a vertical strip, called the critical strip, on the complex plane. The Riemann hypothesis says that these zeros all lie on a single vertical line, called the critical line, so rather than worrying about where the zeros lie horizontally in the critical strip we can look at how they are distributed vertically.

In the 1970s Montgomery proved – with certain conditions – a striking similarity between the pair correlation of the zeros of the Riemann zeta-function (as the height on the critical line tends to infinity) and the pair correlation of the eigenvalues of random unitary matrices (as the size of the matrices tends to infinity). Rudnick and Sarnak showed this result can be extended to *n*-correlation of the Riemann zeta-function and also generalised these results to apply to all *L*-functions. Katz and Sarnak conjectured that if we arrange *L*-functions into families, we can also model statistics across these families using groups of appropriate random matrices.

Unfortunately random matrices do not directly give us all the lower-order terms for the *n*-correlation of zeros of the Riemann zeta-function. Luckily Conrey and Snaith showed how we can use calculations on random unitary matrices as a guide for calculating the *n*-correlation of the Riemann zeta-function explicitly.

I am currently working on extending their ideas to apply to families of *L*-functions related to elliptic curves; to do this I am using random even orthogonal matrices to guide the calculations. I will also calculate the *n*-correlation of Dirichlet *L*-functions using random symplectic matrices.



Amy with poster

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Log-Gases and Random Matrices

Peter J. Forrester

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Random matrix theory, both as an application and as a theory, has evolved rapidly over the past fifteen years. *Log-Gases and Random Matrices* gives a comprehensive account of these developments, emphasizing log-gases as a physical picture and heuristic, as well as covering topics such as beta ensembles and Jack polynomials.

London Mathematical Society Monographs, 34 Martin Bridson, Terry Lyons, and Peter Sarnak, Series Editors Cloth \$99.50 978-0-691-12829-0

33

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Introduction to Ramsey Spaces

Stevo Todorcevic

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Introduction to Ramsey Spaces presents in a systematic way a method for building higher-dimensional Ramsey spaces from basic one-dimensional principles. It is the first book-length treatment of this area of Ramsey theory, and emphasizes applications for related and surrounding fields of mathematics, such as set theory, combinatorics, real and functional analysis, and topology. In order to facilitate accessibility, the book gives the method in its axiomatic form with examples that cover many important parts of Ramsey theory both finite and infinite.

Annals of Mathematics Studies, 174 Phillip A. Griffiths, John N. Mather, and Elias M. Stein, Series Editors Paper \$45.00 978-0-691-14542-6 Cloth \$89.50 978-0-691-14541-9



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NEWSLETTER

American Mathematical Society

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A MATHEMATICAL MEDLEY Fifty Easy Pieces on Mathematics

George G. Szpiro, Neue Zürcher Zeitung

Mathematics is thriving. Not only have long-standing problems, such as the Poincaré conjecture, been solved, but mathematics is an important element of many modern conveniences, such as cell phones, CDs, and secure transactions over the Internet. For good or for bad, it is also the engine that drives modern investment strategies. Fortunately for the general public,

mathematics and its modern applications can be intelligible to the non-specialist, as George Szpiro shows in *A Mathematical Medley*.

Jul 2010 236pp 978-0-8218-4928-6 Paperback £28.50



MATHEMATICS EVERYWHERE

Edited by Martin Aigner & Ehrhard Behrends, Freie Universität Berlin

Translated by Philip G. Spain

Mathematics is all around us. Often we do not realise it, though. *Mathematics Everywhere* is a collection of presentations on the role of mathematics in everyday life, through science, technology, and culture. The common theme is the unique position of mathematics as the art of pure thought and at the same time as a

universally applicable science. The authors are renowned mathematicians; their presentations cover a wide range of topics. From compact discs to the stock exchange, from computer tomography to traffic routing, from electronic money to climate change, they make the 'math inside' understandable and enjoyable.

Jul 2010 327pp 978-0-8218-4349-9 Paperback £40.50

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FUNCTION THEORY AND DYNAMICAL SYSTEMS AT UCL

The annual One-Day Function Theory Meeting will be held at University College London on 6 September 2010. This will be followed immediately by a workshop on *Function Theory and Dynamical Systems* from 7 to 9 September. The workshop will cover functional iteration as well as differential and difference equations in the complex plane and *p*-adic spaces. Confirmed speakers are:

- Francesco Baldassarri (Università degli Studi di Padova)
- Tom Carroll (University College Cork, Ireland)
- William Cherry (Univ. of North Texas, USA)
- Yik Man Chiang (Hong Kong University of Science and Technology)
- Alexandre Eremenko (Purdue University)
- Alain Escassut (Université Blaise Pascal)
- Galina Filipuk (Warsaw University)
- Walter Hayman (Imperial College London)
- Pei-Chu Hu (Shandong University)
- Risto Korhonen (Univ. of Eastern Finland)
- Ilpo Laine (University of Eastern Finland)
- Jim Langley (University of Nottingham)
- Beatrice Pelloni (University of Reading)
- Phil Rippon (Open University)
- Simon Ruijsenaars (University of Leeds/ Loughborough University)
- Robert Rumely (University of Georgia)
- Gwyneth Stallard (Open University)
- Kazuya Tohge (Kanazawa University)
- Lucia di Vizio (Université Paris VII)
- Chung-Chun Yang (Hong Kong University of Science and Technology)

All are welcome to attend. If you are interested, email Rod Halburd (R.Halburd@ ucl.ac.uk) to register, and for further information see the website at www. homepages.ucl.ac.uk/~ucahrha/conferences/ ftds2010. These events are supported by an LMS Conference grant and there is some funding available for UK postgraduate students.

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REVIEWS

Mathematics in Historical Context by Jeff Suzuki, 2009, MAA Spectrum, 409 pp, \$58.95, ISBN 978-0-88385-570-6.

This book does two different things. It combines an introduction to the history of mathematics with an introduction to history *tout court*. I don't know of anything else like it. Although the reader almost inevitably wonders whether a single author can really get details right all of the time across such a broad range, my sense in so far as I am qualified to check is that Suzuki has done so.

Yet neither as a one-volume history of mathematics nor as a one-volume history of (parts of) the world does this book really eclipse – or approach – what is already out there. It would be unfair to expect it to, of course, but the fact remains that a student who is prepared to read two books could study, say, Norman Davies on Europe and Katz on the history of mathematics, and the result would be a considerable gain. In other words, it's difficult to avoid the feeling that here are yoked together half a one-volume history of mathematics and half a one-volume history of the world.

Early on, Suzuki states that "every culture in the world creates some sort of mathematics", but he mostly presents a familiar picture in which the southern hemisphere is very largely a blank, the middle east exits towards the end of the middle ages, and China and India follow in the early modern period, leaving Europe and, later, the USA alone on the mathematical world stage. The treatment of the non-western world as essentially a source of precursors is regrettable (to put it mildly), but as far as the handling of Europe itself is concerned this is a fairly normal exposition of the development of modern western higher mathematics: if 19th-century Scandinavia, or Russia, seem under-played, it's nice to see medieval France getting some space. But this quite localised agenda pulls away from giving a rounded account of history or of historical .

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NEWSLETTER

context: no-one would choose this selection of times and places for a history book if the focus were not mathematics.

The (higher) mathematical theme also produces another kind of focus: on the welleducated and their concerns: often battles and wars, politics and revolutions. With precious few women in sight, and precious little of the uneducated or the half-educated, this is a style of history which I think few historians today would endorse, and it, again, points away from what one would naturally understand 'historical context' to mean in the twenty-first century. "What would Newton see if he looked out his bedroom window?" the back cover asks, and my hopes, perhaps unreasonably, were for a panoramic social history focusing on the grass roots, mathematical and otherwise. Instead, it seems, what Newton would have seen was the Declaration of Indulgence and the Glorious Revolution.

I feel particularly concerned about these two issues because they risk giving mathematical students the impression that historians are stuck in a time-warp, endlessly re-hashing a grand narrative of, largely, western great men and their battles, literal or metaphorical. We are not, and an opportunity has been lost here to show the interested student something of what modern history is really about.

I am sorry to criticise, and more sorry to de-

mand, in effect, that the author had written a different book. This is an ambitious, careful, and readable account, and it presents information which is not available elsewhere in one-volume form. It's handsomely produced and reasonably inexpensive. I wish I could recommend it more warmly, but I feel I must warn the reader that the two-volume route remains the better one.

> Benjamin Wardaugh All Souls College, Oxford



Learning MATLAB by Tobin A. Driscol, 2009, Society for Industrial and Applied Mathematics, 111 pp, £16.14, US\$28.00, ISBN 978-0-898716-83-2.

"Do we really need yet another book on MAT-LAB?" I hear you exclaim. I must confess this was my initial reaction when asked to review this book. My bookshelves, already bowed under the weight of several mighty MATLAB® tomes, did not appear to need another. However, as soon as I saw the book I was intrigued. My experience of books on programming, and MATLAB in particular, is that they are all exceedingly thick and incredibly heavy, but *Learning MATLAB* is rather different. The size of a standard paperback, it has under 100 pages. But did this mean it would have enough information in it? Some of us are never satisfied!

I have been using MATLAB for the past six years and more recently have been involved in teaching the use of it to first year mathematics undergraduates. MATLAB (from Matrix Laboratory) is a high-level computer language and interactive environment developed by Math-Works. In 2004, MathWorks claimed that it was used by more than one million people worldwide in industry and academia. The advantage of MATLAB is that it allows users to see results without using complicated and time-consuming programming. Good programming skills are an advantage but are not essential, which makes it an ideal environment for teaching mathematics students the rudiments of programming.

> Learning MATLAB is concise because it frequently points the reader to MATLAB itself for more information, encouraging you to become familiar with the online help facility. This book cannot be read without MATLAB open in front of you, trying out the commands as they are explained. Active reading is what the author recommends. Not only that, but Driscol doesn't spend time going through the standard mathematical functions included in other books; instead he concentrates on

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her on what is peculiar to MATLAB. Each chapter is peppered with examples to try out and ends with exercises to work through. These are well designed to test the reader's understanding of the chapter.

What I particularly like about this book is that it is written by a seasoned MATLAB user that has come across the same pitfalls as I have and explains them clearly. So, whereas he doesn't take several pages to explain the details of matrix operations and functions, he does give details as to how MATLAB stores arrays and shows the reader how to reference each element in the array. This enables one to make much more sense of the errors messages that can occur.

Although this is a book that I will mention to our students, it is not necessarily one that I think they will find the most useful. However, for someone with programming experience, either learning MATLAB for the first time or wanting to know more about it in order to teach it to others, this book is ideal and I thoroughly recommend it.

> Noel-Ann Bradshaw University of Greenwich

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MATLAB® is a registered trademark of The MathWorks, Inc.

Maths for Mums and Dads by Rob Eastaway and Mike Askew, 2010, Random House, 368 pp, £9.99, ISBN 978-0-224086-35-6.

As a parent of two primary school children, I found reading Maths for Mums and Dads to be something of an eve-opener. For a number of years, I had assumed that mathematics was only taught one way but this book demonstrates that alternative approaches, in some cases simpler than the methods I know from childhood, could be used to solve problems in less time and with less pain! Maths for Mums and Dads is a useful aid in explaining the areas of mathematics that are covered at primary school level and helps to lay the foundations of maths understanding. The authors reassure the parent that the subject can be taught to their children in a home environment, tackling mathematics problems varying from simple arithmetic to more challenging subjects such as



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division, fractions, geometry and data handling. For example, the 'chunking' or 'grouping' method is a great way of dealing with division and multiplication of large numbers and trains the brain to deal with more complex sums in a fraction of the time. The book is easy to read, with a 'chatty', informal style which is reinforced by examples using games and guizzes and even some clever use of everyday props to aid problem solving. The glossary chapter is an excellent reference for mathematical terminology, and brings the parent up to date. For those parents who rely on calculators to do simple arithmetic, the authors have introduced a section on calculator maths, which has some nice hints and tips about how to use the calculator efficiently to get the correct answer or confirm answers done in long hand. But for the most part, emphasis is placed on solving basic maths problems by working through the method to get the answer, thus giving the parent confidence to constructively help with their child's homework. I must admit that on reading the book, I was surprised at the level of mathematics that is taught at primary level; I assumed that some areas covered in the book would be taught at secondary level. so Maths for Mums and Dads would be handy for today's primary-school parent being challenged with maths homework today. I would recommend this book as a useful tool for learning and understanding mathematics the fun way.

> Helen McDermott St Andrews, Scotland

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NEWSLETTER

CALENDAR OF EVENTS

This calendar lists Society meetings and other events publicised in the *Newsletter*. Further information can be obtained from the appropriate LMS *Newsletter* whose number is given in brackets. A fuller list of meetings and events is given on the Society's website (www.lms.ac.uk/newsletter/calendar.html).

JULY 2010

2 LMS Meeting, Hardy Lecture, London (393) 2 LMS Graduate Student Meeting

5-9 Symplectic Geometry and Transformation Groups ICMS Workshop, Edinburgh (386) 5-9 Partial Differential Equations and Fluid Mechanics Workshop, Warwick (392) 5-15 Numerical Analysis of Multiscale

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Problems EPSRC–LMS Durham Research Symposium, Durham (391)

6-8 Individual and Collective Fluid Mechanics of Swimming Microorganisms Conference, Glasgow (391)

7-9 Postgraduate Combinatorial Conference, London (392)

12-13 Reconstructing and Understanding Climate Change over the Last Few Millennia and the Holocene ICMS Workshop, Edinburgh (386)

12-15 Rigidity of Frameworks and Applications Workshop, Lancaster (392) 18-23 Model Theory, LMS–EPSRC Short Course, Leeds (392)

18-23 Classical & Quantum Integrable Models, LMS–EPSRC Short Course, Kent (392)

18-25 Extremal and Probabilistic Combinatorics Workshop, Petersfield (393) 18-25 Non-Perturbative Techniques in Field Theory EPSRC–LMS Durham Research Symposium, Durham (391)

19-20 Recent Trends in Applied Inverse Problems Workshop, Birmingham19-20 Mathematics and the Arts, Paris, France (388) 24-30 17th IMC for University Students, Blagoevgrad, Bulgaria (391)

25-30 Ergodic Theory & Arithmetic Dynamics LMS–EPSRC Short Course, London (393) 25-31 Computational Mathematics & Scientific Computing LMS–EPSRC Short Course, Durham (392)

26-28 Combinatorial Algorithms Workshop, King's College London (390)

26-30 Group-Theoretical Methods in Physics Colloquium, Northumbria (390)

AUGUST 2010

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6-8 International Pure Mathematics Conference (392)

17-18 International Conference of Women Mathematicians 2010, Hyderabad, India (391)19-27 International Congress of

Mathematicians 2010, Hyderabad, India (393) 23-27 Stochastic Methods in Climate Modelling Workshop, INI, Cambridge (394) 25 LMS Meeting, ICM 2010, Hyderabad, India (394)

30-2 Sep Algebra, Combinatorics, Dynamics and Applications Workshop, Belfast (393)

SEPTEMBER 2010

1-3 Models in Population Dynamics and Ecology 2010 Workshop and Conference, Leicester (394)

2-4 British Logic Colloquium, Birmingham (394)

2-5 William Rowan Hamilton Geometry and Topology Workshop, Dublin (393)6 LMS Midlands Regional Meeting,

Nottingham (394)

6 Function Theory Meeting, University College London (394)
6-7 2020 Vision: Maths and Stats in

Higher Education Over the Next 10 Years, Birmingham (394)

6-8 British Topology Meeting, Oxford (391)6-8 European Symposium on Algorithms, Liverpool (394) ۲

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6-10 Multivariate Approximation and Interpolation with Applications ICMS Workshop, Edinburgh (386)
6-10 Fluid-Kinetic Modelling in Biology,

Physics and Engineering Workshop, INI, Cambridge (394) 7-9 Function Theory and Dynamical Systems

Workshop, University College London (394) 7-10 C*-algebras Workshop, Nottingham (394)

12-17 Highly Oscillatory Problems: From Theory to Applications, INI, Cambridge (389) 14-19 British Science Festival, Birmingham (394)

16-17 Heilbronn Conference, Bristol (393) 16-17 Induction Course for New Lecturers, Birmingham (394)

17 Geometry & Algebra Spitalfields Day, Royal Society of Edinburgh (394)

20-24 Dissipative PDEs in Bounded and Unbounded Domains and Related Attractors, ICMS Workshop, Edinburgh (394)
29 LMS Popular Lectures, Birmingham

(394)

OCTOBER 2010

11-15 The Higher-Genus Sigma Function and Applications, ICMS Workshop, Edinburgh (394)

NOVEMBER 2010

19 LMS Annual General Meeting, Naylor Lecture, London

DECEMBER 2010

6-10 Birational Geometry, ICMS Workshop, Edinburgh (394)
6-10 Australian Statistical Conference 2010, Fremantle, Australia (383)

JANUARY 2011

10-14 Torsors: Theory and Application, ICMS Workshop, Edinburgh(394)

APRIL 2011

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4-8 Computational Challenges in Partial Differential Equations Meeting, Swansea (392)

15-19 The Kervaire Invariant and Stable Homotopy Theory, ICMS Workshop, Edinburgh (394)

JUNE 2011

6-8 Nonlinear Diffusion: Algorithms, Analysis and Applications Workshop, Warwick

6-10 Oscillatory Integrals in Harmonic Analysis, ICMS Workshop, Edinburgh (394)

26-30 Signal Processing with Adaptive Sparse Structured Representations ICMS Workshop, Edinburgh (394)

26-30 New Developments in Non-Commutative Algebra and Applications ICMS Workshop, Skye (394)

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A.W. REINOLD LMS member 1867–1881



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Arnold William Reinold, MA, FRS Fellow of Merton College, Oxford Professor of Physics, Royal Naval College, Greenwich President of the Physical Society 1888–1890

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