

NEWSLETTER

No. 385 October 2009

Society Meetings and Events

2009

Friday 20 November AGM, London [pages 1, 3]

4–6 December

Joint meeting with the Belgian Mathematical Society, Leuven



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2010

Friday 2 July London

COUNCIL MEETING 24 August 2009

The Council of the Society met on Monday 24 August under the new President, Sir John Ball, FRS, and welcomed Dr Brian Stewart as Treasurer to serve until the forthcoming AGM. Council confirmed its decision that Professor Angus Macintyre, FRS, be President-Designate with respect to the coming elections in November. However, as a consequence of this Council received with regret the resignations with immediate effect of the Vice-President, Professor Alice Rogers, and the General Secretary, Professor Charles Goldie. Council will aim to appoint Officers to the two posts at its meeting on 14 October, to serve until the Annual General Meeting on 20 November 2009; further information will be posted on the Society's website (www.lms.ac.uk).

2009 ELECTIONS TO COUNCIL AND NOMINATING COMMITTEE

The ballot papers for the November elections to Council and Nominating Committee are being circulated with this copy of the *Newsletter*. Nominating Committee has put forward names for each Officer post; in addition members have proposed candidates for two posts: General Secretary and Education Secretary. A total of 15 candidates have been proposed (9 by Nominating Committee, 6 by members) for the 7 vacancies in Members-at-Large of Council. Four names have been proposed (all by Nominating Committee) for 2 vacancies in the membership of the Nominating Committee.

Please note that completed ballot papers must be returned by Thursday 12 November 2009.

A separate form for suggesting names to the Nominating Committee for potential candidates for the 2010 elections is also included. Members are also able to make direct nominations; details will be given in the April and May Newsletters next year.

ANNUAL GENERAL MEETING

The Annual General Meeting of the Society will be held at 3.15 pm on Friday 20 November 2009 at the Institute of Education, London. The business shall be:

- (i) the adoption of the Annual Report for 2008/09
- (ii) the report of the Treasurer
- (iii) appointment of Auditors
- (iv) elections to Council and Nominating Committee
- (v) presentation of certificates to Prize winners

I hope that as many members as possible will be able to attend.

Peter Cooper Executive Secretary



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BERWICK PRIZE 2009

We regret that the following announcement of the award of the Society's Berwick Prize for 2009, announced at the Meeting on 3 July, was omitted from the list in the September issue of the *Newsletter*. The Society extends its congratulations to the winners:

PROFESSOR JOSEPH CHUANG, of City University London, and DR RADHA KESSAR, of the University of Aberdeen, are awarded the **Berwick Prize** in respect of their joint paper 'Symmetric groups, wreath products, Morita equivalences and Broué's abelian defect conjecture', *Bulletin of the London Mathematical Society* 34 (2002) 174–185.

ROYAL SOCIETY AWARDS

The Royal Society has announced the award of the following:

Sylvester Medal

The 2009 Sylvester Medal to Professor Sir John Ball, FRS, for his seminal work in mechanics and nonlinear analysis and his encouragement of mathematical research in developing countries. The medal is named after James Joseph Sylvester who was Savilian Professor of Geometry, Oxford, in the 1880s and LMS President 1866–68.

Michael Faraday Prize

The 2009 Michael Faraday Prize to Professor Marcus du Sautoy. He will deliver the Faraday Lecture in early 2010. The Michael Faraday Prize is the United Kingdom's premier award for science communication and is awarded annually for excellence in communicating science to UK audiences. Marcus du Sautoy is an LMS member and a member of the LMS-IMA Mathematics Promotion Unit Steering Group.

LMS Newsletter

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LONDON MATHEMATICAL SOCIETY ANNUAL GENERAL MEETING

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Friday 20 November 2009

Jeffery Hall, Institute of Education, Bedford Way, London WC1

- 3.15–3.30 Annual General Meeting
- **3.30–3.45** Roger Heath-Brown (Oxford) The most important problem in mathematics (?)
- 3.45-4.15 Tea
- **4.15–4.45** Leif Abrahamsson (Uppsala) Support for mathematics in developing countries
- **4.45–5.15** Rosemary Bailey (QMUL) Teaching mathematics: satnav or map?
- 5.15–5.45 Ken Brown (Glasgow) The Research Excellence Framework and issues arising from it

Followed by a Reception at De Morgan House.

The AGM will include the presentation of certificates to the 2009 LMS prize winners.

There are funds available to contribute in part to the expenses of members of the Society or research students to attend the meeting. Requests for support, and any other queries about the AGM, should be sent to Isabelle Robinson (isabelle.robinson@lms.ac.uk).

ANNUAL DINNER

The 2009 Annual Dinner will be held after the Annual General Meeting at 7.30 pm on Friday 20 November at The Park Hotel, London WC1. The cost for members and their guests is $\pounds 43$

per person. The booking form, enclosed with this *Newsletter*, should be returned together with payment to Leanne Marshall at the Society's offices by **Monday 9 November**.

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DAVID CRIGHTON MEDAL 2009

The Councils of the Institute of Mathematics and its Applications and the London Mathematical Society have awarded the 2009 David Crighton Medal for services to mathematics and to the mathematical community to Professor Keith Moffatt, FRS, Emeritus Professor of Mathematical Physics at the University of Cambridge, in recognition of his contributions to fluid dynamics and mathematical modelling and for his leadership in many positions in UK and international mathematical organisations.

Keith Moffatt is one of the world's preeminent applied mathematicians, who has, over a research career spanning 50 years, made landmark contributions to an extraordinarily wide range of problems in fluid mechanics.

Seminal works include his creation of the new sub-discipline of topological fluid mechanics, in which he used fundamental notions from topology to shed light on the dynamics of turbulent flow; his discovery of unsteady circulatory motion in low-Reynolds number corner flow (the so-called Moffatt eddies); and in magnetohydrodynamics, in which he elucidated the interaction between fluid turbulence and magnetic fields.

Keith's work is characterised by his ability to translate complex physical processes into tractable mathematical models, which he solves with great elegance to yield an extraordinary level of new physical insight and understanding. His ability to communicate this insight to an audience, and to inspire them with his fascination for the subject, is one of the hallmarks of his presentations.

Keith has made an immense contribution to the mathematics community. His highly successful tenure as Director of the Isaac Newton Institute (INI) in Cambridge has had a major impact on both UK and international mathematics. Under his leadership the INI was able to cement its position as a key asset for the whole UK community. The breadth of exceptional programmes that Keith was able to attract from across the full mathematical spectrum was a key element during his period as Director. INI participants speak with great affection of his constant interest in their programmes and his attention to detail.

Keith has also given many years of outstanding service to the International Union of Theoretical and Applied Mechanics (IUTAM), including a period as President, 2000–04. Beyond these contributions he is particularly active in helping to build capacity for mathematical research in developing nations, and has been a long-term champion of the African Institute of Mathematical Sciences in Cape Town.

The medal will be awarded at an event scheduled to take place on the evening of 17 March 2010 at the Royal Society in London. Details of how Society members can apply for tickets will be released nearer to the time.

CECIL KING TRAVEL

The 2009 Cecil King Travel Scholarship has been awarded to Gwyn Bellamy, a postgraduate research student at the University of Edinburgh. The London Mathematical Society makes the award of up £5,000 annually to a young mathematician of outstanding promise, to support a period of study or research abroad for a typical period of three months. Gwyn will use the Scholarship to fund a trip to the University of Chicago to explore the relationship between rational Cherednik algebras and the Geometric Langlands Correspondence.

The Cecil King Travel Scholarship was established in 2001 by the Cecil King Memorial Fund. The award is made by the Council of the LMS on recommendation of the Cecil King Prize Committee, nominated by the Society's Education Committee.

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All prices are net prices

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► Fax: +49 (0) 6221-345-4229 ► Email: orders-hd-individuals@springer.com ► Prices are subject to change without notice.

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LONG-STANDING MEMBERSHIP ELIGIBILITY

Changes to the By-laws were approved in November 2007 which, among other things, changed the criteria by which long-standing members become eligible for free membership. The **only** criterion is now that the member must have paid annual subscriptions for at least 35 years.

Council agreed transitional arrangements to ensure that members who previously would have qualified for free membership at an earlier point were not unduly disadvantaged by this change.

Members who this year become eligible for free membership will be contacted. Members who would have been eligible for free membership but whose eligibility has been deferred under the transitional arrangements will also be contacted direct to inform them of the timing of their new eligibility.

VISIT OF PROFESSOR T. SEKIMURA

Professor Toshio Sekimura (Chubu University, Japan) is visiting the UK during September and October. His current research interest is in the analysis of the processes that lead to diversity in pattern formation and morphogenesis related to cell differentiation. During his visit he will give talks at:

- University of Oxford, 2 October, 2–3 pm, L3, Mathematical Institute, 24–29 St Giles Parr mark formation in the early development of Amago trout
- University of Strathclyde, 7 October, 3.30–4.30 pm, Livingstone Tower, 8th Floor, Room L8.31

An integrative approach to pattern formation in butterfly wings

For further information, contact Dr Anotida Madzvamuse (A.Madzvamuse@sussex.ac.uk). This visit is supported by an LMS Scheme 2 grant.

ROYAL SOCIETY INDUSTRY FELLOWSHIPS 2010

This scheme aims to enhance knowledge transfer in science and technology between those in industry and those in academia. It provides opportunities for an academic scientist to work on a collaborative project with industry, or someone employed in industry to work on a collaborative project with a university department or a notfor-profit research organisation. It is anticipated that fellows will establish personal and corporate links between the two sectors in the UK as a foundation for their long-term future development. Projects at any stage from fundamental science to industrial innovation will be supported.

The deadline is **Wednesday 14 October 2009**. For more information visit the website at royalsociety.org/funding.asp?id=1125.

EPSRC PARTNERSHIPS GRANTS

The EPSRC Partnerships for Public Engagement (PPE) scheme provides opportunities for researchers to undertake public engagement projects related to their research interests. Awards are aimed at active researchers, and their research groups, in partnership with outside specialists or partner organisations that can provide the necessary expertise. The objectives of the scheme are to:

- enable researchers to carry out high-quality public engagement projects related to their research interests;
- provide learning and training opportunities in aspects of public engagement, and to build the capacity and capability for researchers to be active in public engagement;
- stimulate the general public's interest in, and engagement with, research and its potential impact on society.

Closing date for applications is **4 pm Tuesday 27 October 2009**. For more information visit the website www.epsrc.ac.uk/CallsForProposals/ ppestartergrant.htm.

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NSF/EPSRC MATERIALS 2009

Call for Proposals

EPSRC is participating in the 2009 call by the National Science Foundation (NSF) called *Materials World Network: Cooperative Activity in Materials Research between US Investigators and their Counterparts Abroad* (MWN). The call is an initiative to foster opportunities for collaborative activities in materials research between researchers in the US and the rest of the world.

Continued progress in materials research is increasingly dependent upon collaborative efforts among several different disciplines, as well as closer coordination among funding agencies and effective partnerships involving universities, industry, and national laboratories. In addition, because of the growing interdependence of the world's economies, partnerships are important not only at the national level but from an international point of view as well.

Amongst other requirements, proposals must have a clear relevance to fundamental materials phenomena, synthesis, characterisation and/or properties, or materials processing/fabrication, and fall within NSF's remit for the call. This may differ from EPSRC's remit and must therefore be checked with NSF prior to submission. EPSRC and NSF reserve the right to reject any proposal that does not fulfil the submission criteria.

The deadline is **4 pm Wednesday 11 November 2009**. For more information visit the website at www.epsrc.ac.uk/CallsForProposals/ nsfmaterials09.htm.

PROGRAMME COMMITTEE GRANTS

Grants awarded between December 2008 and July 2009

Conference Grants (Scheme 1)

Grants awarded to support conferences held in the UK.

Conference	Applicant	Grant
60th British Mathematical Colloquium (additional grant)	M.M. Dodson, S. Donkin, G.M. Wood	£1,000
Algebraic and Arithmetic Geometry of Higher- Dimensional Varieties	T. Browning	£1,000
Algebraic Theory of Difference Equations	A.V. Mikhailov	£5,000
Anglo-French MHD Conference	M. Proctor	£3,900
Biennial Conference on Numerical Analysis: Minisymposium 'The QR Algorithm'	A. Wathen	£700
British Logic Colloquium (BLC 2009)	U. Berger	£3,768
British Mathematical Colloquium 2009 (& joint meeting with the Irish Mathematical Society) (additional grant)	J.J. Ward, T.C. Hurley	£2,000
British Topology Meeting	A. Lazarev	£3,900
CICADA/MIMS Workshop on Numerics for Control and Simulation	Y. Chahlaoui	£3,227
Diverse Faces of Arithmetic	S. Stevens	£5,000

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Conference Grants (Scheme 1) continued

Conference	Applicant	Grant
Enceladus' Enigmas: Observations and Multiscale Modeling	N. Brilliantov	£3,600
European Conference on Complex Systems 2009	R. MacKay	£2,000
Function Theory One-Day Meeting 2009	J.K. Langley	£265
Groups St Andrews 2009 in Bath	C. Campbell	£5,000
ICFT09: 13th UK Meeting on Integrable Models, Conformal Field Theory and Related Topics	J. Cardy	£1,665
International Symposium on Imprecise Probability: Theories and Applications (ISIPTA '09)	F. Coolen	£2,000
Liquid Crystal Theory and Modelling: Discussion Meeting	A. Majumdar	£5,000
Mathematics of Phase Transitions: Past, Present and Future	D. Ueltschi	£3,700
Mathematics of the Brain	J. Levesley	£5,325
Maths 2010 (BMC/BAMC 2010)	A. Lacey	£15,000
New Developments in Elasticity: The Legacy of Robert Hooke	J. Ball	£6,000
Operators and Operator Algebras in Edinburgh	A. Carbery	£6,000
Plasmas, Computation and Mathematics	R.W. Tucker	£1,530
Reflections on Nonlinear Mechanics	A. Champneys	£3,227
Resonance Oscillations and Stability of Nonsmooth Systems International Workshop	J. Lamb	£2,000
Scottish Computational Mathematics Symposium	J. Tanner	£1,995
Spectral and Cubature Methods in Finance and Econometrics	S. Levendorskiy	£3,400
Stochastic Differential Equations and Stochastic Partial Differential Equations and Related Topics	T. Zhang	£1,000
Stochastic Processes at the Quantum Level	J. Gough	£1,598
Two Linked One-Day Combinatorics Colloquia	G. Brightwell	£1,400
Wales Mathematics Colloquium	A.R. Davies	£1,430
Workshop in Spectral Theory and PDE	A. Pushnitski	£5,390
Workshop of Delay Differential Equations: From Theory to Applications	Y. Kyrychko	£4,020
Workshop on Lattice Boltzmann Methods	G.W. Roberts	£1,500

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Visitors	Grants	(Scheme	2)
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Grants awarded to support visits to the UK; lectures must be given at three separate institutions.

Visitor	To visit	Applicant	Grant
I. Agol	Oxford, Imperial College London, Warwick	S. Schleimer	£1,200
J. Athreya	Bristol, Warwick, East Anglia	A. Ghosh	£1,200
T. Bandyopadhyay	Birmingham, Warwick, Lancaster	A. Guha	£1,200
M. Berman	Southampton, Royal Holloway, Oxford	C. Voll	£1,200
G. de Cooman	Durham, Bristol, Newcastle	F. Coolen	£880
A. Doucet	Bristol, Imperial College London, Oxford	D. Crisan	£1,200
A. Dranishnikov	Durham, Newcastle, Edinburgh	M. Farber	£930
J. Duan	Loughborough, Warwick, Swansea	H. Zhao	£1,200
M. Ershov	Imperial College London, Royal Holloway, Oxford	B. Klopsch	£1,000
M. Field	Exeter, Warwick, Manchester	P. Ashwin	£1,200
S. Gindikin	Loughborough, Oxford, Edinburgh	E.V. Ferapontov	£1,150
C. Laing	Heriot-Watt, Warwick, Nottingham	S. Coombes	£1,200
C. Makridakis	Oxford, Leicester, Sussex	E. Georgoulis	£1,050
S. Molchanov	QMUL, Leeds, Durham	L. Bogachev	£1,200
K. Parshall	Greenwich, Leeds, Open	D. Salinger	£1,200
T. Sekimura	Oxford, Strathclyde, Sussex	A. Madzvamuse	£1,200
A. Sims	Aberystwyth, Lancaster, Nottingham	G. Evans	£1,100
A.F.M. ter Elst	Bristol, Cardiff, Swansea	Z. Sobol	£1,072
D. Yakubovich	Leeds, Newcastle, Glasgow	M. Dritschel	£815

Support of Joint Research Groups (Scheme 3)

Grants awarded to support collaborative research by groups with common research interests, at three different locations in the UK.

Topic or Group	Grant holder and Supporters	Institutions	Grant
Algebra and Representation	A. Sevastyanov,	Aberdeen, Newcastle,	£1,400
Theory in the North (ARTIN)	P. Jorgensen, D. Jordan	Sheffield	
North British Mathematical	B. Schroers, P. Dorey,	Heriot-Watt, Durham,	£933
Physics Seminar	N. MacKay	York	
Singularity Theory and Applications	D. Mond, V. Goryunov, K. Houston	Warwick, Liverpool, Leeds	£1,200

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Support of Joint Research Groups (Scheme 3) continued

Topic or Group	Grant holder and Supporters	Institutions	Grant
UK Harmonic Analysis and PDE Research Network	J. Bennett, A. Carbery, J. Rodrigo	Birmingham, Edinburgh, Warwick	£1,050
Wessex Theory Seminar	G. McCusker, V. Sassone, L. Ong	Bath, Southampton, Oxford	£1,400
Yorkshire Durham Geometry Days	C. Wood, J. Bolton, J. Wood	York, Durham, Leeds	£1,050

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Collaborative Small Grants (Scheme 4)

Grants awarded to support collaborative research between individual mathematicians; the collaboration is usually for one visit which may take place in the UK or abroad.

Applicant	Institution	Collaborator	Institution	Grant
V.C. Mavron	Aberystwyth	J.D. Key	Western Cape, South Africa	£580
B. Sing	Bath	J-Y. Lee, S. Akiyama	KIAS, Seoul; Niigata, Japan	£600
C. Good	Birmingham	P. Oprocha	Krakow	£510
M. Dunajski	Cambridge	R. Gover	Auckland	£600
J. Siemons	East Anglia	H. Shen	Jiao Tong University, Shanghai	£450
G. Williams	Essex	A. Cavicchioli, F. Spaggiari	Modena e Reggio Emilia	£460
I. Strachan	Glasgow	M. Blaszak	Adam Mickiewicz University, Poznań	£600
W. Staubach	Heriot-Watt	A. Axelsson	Stockholm	£585
D. Strauss	Hull	A.T-M. Lau	Alberta, Canada	£600
H. Zheng	Imperial College London	Y.K. Kwok	Hong Kong University of Science and Technology	£600
A. Ivanov	Imperial College London	A. Pasini	Siena	£600
L. Cattaneo	Imperial College London	S. Albeverio	Bonn	£600
A. Lewis	Leeds	K.M. Ng	Victoria University of Wellington	£600

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Applicant	Institution	Collaborator	Institution	Grant
A. Vdovina	Newcastle	R. Kangaslampi	Helsinki	£500
H. Touchette	QMUL	E.G.D. Cohen	Rockefeller, New York	£400
I. Ballai	Sheffield	R. Oliver	Universitat de les Illes Balears, Mallorca	£350
B. Nucinkis	Southampton	C. Martinez-Perez	Zaragoza, Spain	£600
D. Chillingworth	Southampton	G. De Matteis	Centro De Giorgi, Pisa	£150
O. Lakkis	Sussex	A. Demlow	Kentucky University	£400
S. Guillas	University College London	S. Dabo-Niang	Charles De Gaulle, Lille	£600
M. Pollicott	Warwick	M. Tyran-Kaminska	Silesia, Poland	£600
P. Busch	York	H-J. Schmidt	Osnabruck	£600
V. Gould	York	L. Mark, P.N. Anh	Hungarian Academy of Sciences	£600

Collaborative Small Grants (Scheme 4) continued

International Short Visits (Scheme 5)

Grants awarded to support visits for collaborative research; visits should be to or from countries where the development of mathematics is poor, e.g. countries within Africa.

Visitor	From	To Visit	Applicant	Grant
J.A. Weideman	Stellenbosch, South Africa	Oxford	L.N. Trefethen	£2,100
R.T. Curtis	Birmingham	Western Cape and KwaZulu Natal		£1,195
F. Neumann	Leicester	Ghana		£1,280

Postgraduate Research Conference Grants (Scheme 8)

Grants awarded to support postgraduate research conferences held in the UK.

Conference	Organiser	Applicant	Grant
Postgraduate Group Theory Conference 2009	B. Wright	P. Rowley	£3,990
20th Postgraduate Combinatorial Conference 2009	A. Soleimanfallah	S. Blackburn	£2,465
3rd European Postgraduate Fluid Dynamics Conference	Z. Jones	J. Billingham	£2,900

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OPENING PLENARY





Professor Margaret Brown

WHAT NEXT !



Professor Paul Cobb

You can express an interest, offer a session, request exhibitor information or get more information about the conference at www.bcme7.org and click on the contact page

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MATHEMATICS POLICY ROUND-UP

A-level and Scottish Highers results 2009

This year's mathematics A-level results continued the trend of the last few years, with entries increasing significantly. A-level mathematics entries rose over 12% to 72,475 with 82% of students achieving grade A-C. At AS-level, mathematics entries increased by 22% to 103,312 with 64.1% achieving A-C grades. Further mathematics entries also continued to increase, rising 15% to 10,473. Of these, 90% achieved grade A-C. Mathematics remained the second most popular A-level subject, behind English, and entry figures are now well above those before the crisis in 2001/02, on the introduction of Curriculum 2000, when entries dropped 20% in a single vear. At this rate, entries now seem to be well on track to meet the DCSF target of 80,000 by 2014. Other 'traditional' subjects also saw rises in entries, in particular physics, where almost 5% more students sat the A-level this vear than last.

Meanwhile, Scottish Highers mathematics entries dropped marginally from 19,636 to 19,631 with 69.7% passing with grades A–C. At Advanced Highers, entries in mathematics have continued a rising trend with a 10% increase to 3,027. This firmly places mathematics as the most popular subject in the Advanced Highers category.

GCSE and Standard Grade results 2009

For the first time in 12 years, boys outperformed girls in GCSE mathematics, coinciding with coursework being dropped two years ago. Entries into GCSE maths were up 2.2% (to 754,738) this year, despite an overall decrease in GCSE entries due to a smaller cohort of 16 year olds. This surge in entries is the result of a sharp increase of 84.5% in the number of entries from candidates aged 15 and below. Performance in maths has also increased at grades A*–C, up 0.9% to 57.2%. Boys achieved slightly more grades A*–C at 57.6%, compared to 56.8% of girls.

In Scotland, Standard Grade entries in mathematics continued in a downward trend decreasing by 8.2% (to 46,779) with 58.6% of candidates achieving grades 1–3. The decrease in entries to mathematics reflects a drop of 7.3% in entries to Standard Grade in general.

Arjun Chandel Data Analyst

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Lords ponder research funding priorities

The House of Lords Science and Technology Committee called for evidence for a new inquiry into the question of setting science and technology research funding priorities. The peers are concerned that, with cuts in public spending due to the current economic climate, there must be "an effective mechanism for allocating funds if the UK's science base is to remain healthy both now and in the future and is to continue to contribute to meeting societal needs". In particular, the Committee will examine "the balance of funding for targeted versus unsolicited response-mode, curiosity-driven research", and will look at the Funding Councils and government departmental research and development. The Council for the Mathematical Sciences has been considering submitting evidence to the enquiry. The deadline for evidence was 25 September 2009 and progress of the inquiry can be followed at www.parliament.uk/ parliamentary_committees/lords_s_t_select/ funding.cfm.

Students of mathematics and computer science spend the most

Research by the National Union of Students with the HSBC bank revealed that mathematical sciences and computer science undergraduate students spend more on books and equipment than those in other disciplines. The NUS calculated that these students spend

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an average £1,430.40 per year, compared to a mere £432.48 for students of education who pay the least. Medical and dental students spend an average of £902.16 on these items. The NUS president Wes Streeting said, "Many students preparing to go to university this summer may be in for a real shock. Universities need to be much more open about the hidden costs associated with different courses."

Prisoner of Polygonia

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The Royal Institution hosted the premier of a new mathematics-based comedy play for primary school children. Set in the land of Polygonia, where Maths is the official language, Rhombus the Maths Wizard is falsely imprisoned on the orders of Queen Parabola. Data, a ten-year old girl, is the only witness. Before she can help him she must learn to speak the language of Maths - and work out why the Queen hates anyone who tries to make Maths exciting. The audience has to help Data to solve the puzzles along the way in time to save Rhombus. The play is written by Rob Eastaway, who runs the Maths Inspiration days for schoolchildren aged 15 to 17, and a colleague; they hope that Local Authorities will sponsor performances of the play in local theatres.

General Election planning

The LMS–IMA Mathematics Promotion Unit (MPU) has been considering how the societies should engage with the forthcoming general election campaign to ensure that the interests of the mathematical sciences are promoted. The next general election is due sometime before June 2010 and, following expenses scandals and changing support for political parties, it is expected that many new MPs will be entering Parliament for the first time when the next government is elected. The MPU is planning to work with the Council for the Mathematical Sciences and the Advisory Committee on Mathematics Education to ensure that policy statements which have already been published are brought to the attention of those campaigning for office. The MPU is also working with the Campaign for Science and Engineering (CaSE) whose election plans include preparing an election document on the common issues which all STEM (science, technology, engineering and mathematics) disciplines will face in the UK over the next five years.

Further Mathematics Support Programme

The Further Mathematics Network came to a close on 31 July, after another impressive increase in candidates sitting A- and AS-level Further Mathematics. However, the Government has pledged to continue supporting its work, so from 1 August the Network became the Further Mathematics Support Programme. The FMSP will continue to be funded by the Department for Schools, Children and Families and managed through the MEI (Mathematics in Education and Industry). It will carry on its current work, enabling students in all UK schools to study Further Mathematics as well as extending to work with the NCETM (National Centre for Excellence in the Teaching of Mathematics) to provide professional development for teachers of Further Mathematics, and support for the teaching and learning of Level 3 mathematics within diplomas. Since 2005, when the FMN began, the number of entries to Further Mathematics A-level has doubled. Entries to AS-level Further Mathematics have tripled.

IUSS on Students and Universities

At the beginning of August, the House of Commons Innovation, Universities, Science and Skills committee published a report *Students and Universities* examining undergraduate students' experiences at universities. It found widely varying standards across the UK, saying "It is unacceptable to the Committee that Vice-Chancellors could not give a straightforward answer to the simple qu deg ind sta cat issu any ins cou we ma of visi

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question of whether first-class honours degrees achieved at different universities indicate the same or different intellectual standards." It said that provision and education of STEM graduates was an important issue, calling on Government to "ensure that any new places funded in higher education institutions meet the strategic needs of the country for STEM graduates." The report went on to call for an investigation into master's level students and the admission of international students. To see the report visit www.publications.parliament.uk/pa/cm/ cmdius.htm.

Data analyst

Arjun Chandel has been working in the Council and Committees Group over the summer, collecting and organising data on mathematics education. Arjun has recently graduated from Royal Holloway, University of London with a degree in mathematics. Arjun worked on gathering and organising this year's A-level and GCSE results data (and Scottish equivalents) as reported above, as well as updating the MPU's data on mathematical sciences undergraduate numbers. The MPU thanks Arjun for his hard work and wishes him well in his future career.

Caroline Davis Mathematics Policy and Promotion Officer

ALAN TURING

Members may like to know about the petition to the Prime Minister organised by John Graham-Cumming that reads:

'We the undersigned petition the Prime Minister to apologize for the prosecution of Alan Turing that led to his untimely death.'

For details and to sign the petition go to http://petitions.number10.gov.uk/turing.

Note added in proof: Gordon Brown has responded positively to the petition in an article in the *Daily Telegraph* on 11 September – *Ed.*

MENTORING AFRICAN RESEARCH IN MATHEMATICS

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Mentoring African Research in Mathematics (MARM) is a cooperative programme designed to support mathematics research and advanced teaching in the countries of sub-Saharan Africa. It is run jointly by the London Mathematical Society, the IMU, the African Mathematics Millennium Science Initiative (AMMSI) and the International Centre for Mathematical Sciences (ICMS); it is supported by grants awarded by the Nuffield Foundation and the Leverhulme Trust.

The MARM programme sponsors research partnerships between mathematicians in the more developed countries and African colleagues and their students. Its goal is to counter the mathematics 'brain-drain' from sub-Saharan Africa by supporting the work of qualified mathematics professionals *in situ*. Working in consultation with all parties, MARM establishes longer-term mentoring relations between individual mathematicians and students, creating joint research partnerships between mathematicians working in established research centres, their colleagues in sub-Saharan Africa, and doctoral students of those colleagues.

The scheme has now been in operation for three years; three rounds of proposals have been considered, and nine mentoring partnerships have been set up. Details of the Scheme and the existing projects can be found at www.lms.ac.uk/ grants/MARM.html.

New partnerships are still being sought. Mathematicians from the more developed countries who may wish to become mentors should contact the Scheme Facilitator, Dave Johnson (Dave.Johnson@nottingham.ac.uk); African universities and mathematicians interested in taking part should contact the AMMSI Programme Director, Wandera Ogana (wogana@uonbi.ac.ke). The third call has just closed but the Board managing MARM is keen to establish more partnerships and is leaving the call open, without a defined closing date. Those interested should make contact as soon as possible. 15

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NEWSLETTER

NEWS FROM THE IMU

International Congress of Mathematicians 2010 As readers will know, India is to host the 2010 International Congress (ICM 2010) in the city of Hyderabad from 19 to 27 August 2010.

Mathematics is the language of science and India is proud to have coined one of the most important words of its lexicon - 'zero' - in the distant past; and we have a long tradition of pursuit of mathematics. India joined the IMU soon after it was revived after the Second World War. The Indian mathematical community feels greatly honoured that the IMU has accepted our bid to hold the ICM 2010 in India, thereby extending recognition to our efforts at promoting mathematics. We look forward to welcoming our colleagues from all over the world in Hyderabad, the venue of the Congress, and expect to learn a great deal that is new. The Congress will be of great help to us to raise the level of public awareness about mathematics in our country.

India has been a professional destination for many mathematicians over the last 75 years and more. Many British academics had come to India to teach mathematics in our colleges during the colonial period. W.H. Young, the British analyst, accepted a part-time chair, the Hardinge Professorship of Pure Mathematics in Calcutta University, which he held 1913–17. André Weil spent two years at an Indian university as a professor during 1930–32.

R.A. Fisher spent several extended periods of time at the Indian Statistical Institute in Kolkata (ISI), his first visit dating back to 1937. ISI also hosted visits by Norbert Wiener and A.N. Kolmogorov. Many other distinguished mathematicians, mainly probabilists from the erstwhile Soviet block, visited ISI during the cold war years. In later years, after that institution set up branches in Delhi and Bangalore while at the same time also broadening its areas of research, it has had a string of visitors, many of them big names in mathematics.

The Tata Institute of Fundamental Research

(TIFR), Mumbai, too had a regular stream of visitors almost from its inception in 1945, many of them spending extended periods of time in Mumbai. Carl Ludwig Siegel and Laurent Schwarz made several visits each of a duration of two months and more during the fifties and sixties. Armand Borel and David Mumford made several visits to TIFR during the sixties and seventies (and later). The visitors' list to TIFR includes several Fields Medallists and other renowned mathematicians. The International Colloquia held once in every four years by TIFR have been an important forum for international exchange at the highest level.

To mention a few more distinguished visitors who spent extended periods of time at TIFR during the fifties and sixties: H. Rademacher, H. Mass, M. Eichler, J-L. Lions, K. Yosida, B. Malgrange, F. Bruhat, J.P. Kahane, M. Deuring, G. de Rham, K. Ito, G.D. Mostow, R. Bott and R. Langlands. Many others have come on shorter visits mainly to participate in conferences: A. Selberg, H. Grauert, R. Thom, A. Grothendieck, M.F. Atiyah, L. Hörmander, J. Milnor, I. Pjatetskii-Shapiro, J-P. Serre, H. Furstenberg, G.A. Margulis, D. Kazdan. These visits were of course of great help to us in building mathematics in the country.

The Congress venue Hyderabad is home to several IT companies and rivals Bangalore as an IT hub in the country. The city is well connected, with many airlines flying to and from it. It was founded in the 15th century and is steeped in history. It is also famous for its cuisine. India of course has a lot to offer by way of tourism catering to a wide range of interests: wild life, scenic splendour, historical monuments, art and music, great food and sports as well.

On behalf of the Indian mathematical community I would like to urge mathematicians from all over the world to participate in ICM 2010 and help us make it a great success. For more information see www.icm2010.org.in.

> M.S. Raghunathan Chairman of the organizing committee

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ICMI

A new website for ICMI (International Commission on Mathematical Instruction) has been opened at www.mathunion.org/icmi. The site will house the ICMI Digital Library, where various documents related to ICMI, including the *ICMI Study* volumes and *ICME Proceedings*, will be freely downloadable. The ICMI Executive Committee also wishes the site to serve as a portal to various sources of information on the teaching and learning of mathematics in all parts of the world.

Shaw Prize

The Shaw Prize in Mathematical Sciences 2009 is awarded in equal shares to Simon K. Donaldson (former IMU EC member) and Clifford H. Taubes for their many brilliant contributions to geometry in 3 and 4 dimensions. Please refer to the following link for details: www.shawprize.org/en/shawprize/announcement/announcement.html.

The above items are taken from the 36th issue of the IMU electronic newsletter *IMU Net* (see www.mathunion. org/IMU-Net).

LIQUID CRYSTAL THEORY AND MODELLING

A discussion meeting on Liquid Crystal Theory and Modelling will take place from 29 to 30 October 2009 at St Anne's College, University of Oxford. The field of liquid crystal research has grown substantially in the last two decades due to the booming liquid crystal display industry, new material technologies and the discovery of novel liquid crystalline systems. This meeting will bring together some of the pioneers in the mathematical theory of liquid crystals and experts in current liquid crystal material science. The format will be a two-day discussion meeting consisting of six themed sessions: three sessions focussing on the mathematical modelling and the theoretical foundations of liquid crystals; one session on the numerical simulation of liquid crystalline systems; one session on mathematical theories for related areas such as colloids and biological materials; and one session on liquid crystal applications in industry.

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Each session will be initiated by a keynote speaker followed by invited talks from other academic/industrial researchers and concluding with a general discussion of future prospects. The meeting will be open to all researchers by nomination and will include a poster session for non-presenting participants. Keynote speakers are:

- Chun Liu (Penn State University)
- Alejandro Rey (McGill University)
- Iain Stewart (University of Strathclyde)
- Eugene Terentjev (University of Cambridge)
- Epifanio Virga (University of Pavia)
- Slobodan Zumer (University of Ljubljana) Invited speakers are:
- Paolo Biscari (University of Milan)
- Fulvio Bisi (University of Pavia)
- Carme Calderer (University of Minnesota)
- Doug Cleaver (Sheffield Hallam University)
- Sally Day (University College London)
- Apala Majumdar (University of Oxford)
- Nigel Mottram (University of Strathclyde)
- Chris Newton (Hewlett-Packard Labs, Bristol)
- Lesley Parry-Jones (Sharp Labs, Oxford)
- Jonathan Robbins (University of Bristol)
- Tim Sluckin (University of Southampton)
- Andre Sonnet (University of Strathclyde)
- Mark Wilson (University of Durham)
- Julia Yeomans (University of Oxford)

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Claudio Zannoni (University of Bologna)

There will be a limited number of bursaries for graduate students. For further information, visit the website at www.maths.ox.ac.uk/ events/liquid-crystal-workshop or contact Dr Apala Majumdar (majumdar@maths.ox.ac.uk) or Professor Nigel Mottram (nigel.mottram@ strath.ac.uk). This meeting is supported by the Oxford Centre for Collaborative Applied Mathematics and an LMS Conference grant.

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NEWSLETTER

SCHLUMBERGER FOUNDATION

Call for Applications

The Schlumberger Foundation 2010 Faculty for the Future fellowships are awarded to women from developing and emerging economies who are preparing for PhD postdoctoral study in the physical sciences, engineering and related disciplines (biological sciences awards are limited) to pursue advanced graduate study abroad at top universities in their disciplines.

Launched by the Schlumberger Foundation in 2004, Faculty for the Future has grown to become a community of 110 women from 35 countries. The long-term goal of the programme is to generate conditions that result in more women pursuing scientific disciplines. Grant recipients are therefore selected as much for their leadership capabilities as their scientific talents and they are expected to return to their home countries to continue their academic careers and inspire other young women.

Faculty for the Future grants are in the range of US\$25,000 to US\$50,000 per year, and may be renewed through to completion of studies subject to performance, self-evaluation, and recommendations from supervisors. The amount of the grant depends on the actual costs of study and living in the chosen location.

Candidates have from 5 October to 30 November 2009 to apply for the Faculty for the Future fellowships. They should be enrolled or applying to their selected graduate schools when submitting their Faculty for the Future grant request. Candidates must have a proven track record of teaching experience, demonstrate active participation in faculty life and outreach to encourage young women into the sciences and hold an excellent academic record. Further information about the fellowship programme and the online application form can be found at www.foundation.slb.com/ftft.

THE FIELDS INSTITUTE

The Fields Institute is named after the Canadian mathematician John Charles Fields (1863-1932). The mission of the Institute, founded in 1992, is to enhance mathematical activity in Canada by bringing together mathematicians from Canada and abroad, and by promoting contact and collaboration between professional mathematicians and the increasing numbers of users of mathematics. Thus the Institute supports research in pure and applied mathematics, statistics and computer science, as well as collaboration between mathematicians and those applying mathematics in areas such as engineering, the physical and biological sciences, medicine, economics and finance, telecommunications and information systems. The following major programmes are scheduled:

- Foundations of Computational Mathematics (July – December 2009)
- Quantitative Finance: Foundations and Applications (January – June 2010)
- Mathematics of Drug Resistance in Infectious Diseases (Summer 2010)
- Asymptotic Geometric Analysis (July – December, 2010)
- Dynamics and Transport in Disordered Systems (January – June 2011)
- Discrete Geometry and Applications (July – December 2011)

• Galois Representations (January – June 2012) Visit www.fields.utoronto.ca/programs/scientific for links to these and the many other upcoming workshops, conferences, etc. The Fields Institute environment is designed to support and enhance activities. Office space is provided for as many as 66 visitors; a supportive staff enables program participants to devote most of their energies to research; and full access to the excellent mathematics collection at the University of Toronto is provided. To be informed of upcoming Scientific Activities subscribe to the mailing list at www. fields.utoronto.ca/maillist. LN

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RECORDS OF PROCEEDINGS AT MEETINGS

REGIONAL ORDINARY MEETING

held on *15 July 2009* at the University of Southampton. Around 50 members and visitors were present for all or part of the meeting. The meeting began at 1.30 pm, with the Programme Secretary, Dr S.A. HUGGETT, in the Chair.

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One member signed the book and was admitted to the Society.

Dr B. NUCINKIS introduced a lecture given by Professor Jim Howie on *Finitely* presented residually free groups.

After tea, Dr Nucinkis introduced a lecture given by Dr Cornelia Druţu on Geometry and quasi-isometric rigidity of relatively hyperbolic groups.

Dr Nucinkis then introduced a lecture given by Professor Zlil Sela on Around the first order theory of a free group.

The Chair expressed the thanks of the Society to the local organisers and the speakers for putting on such an excellent meeting.

After the meeting there was a reception hosted by Oxford University Press, followed by dinner at a local restaurant.

LMS SOUTH WEST AND SOUTH WALES REGIONAL MEETING

Report

The London Mathematical Society held its South West and South Wales Regional Meeting 2009 on 15 July 2009 at the University of Southampton. It was opened by the LMS Programme Secretary Dr Stephen Huggett.

The meeting (attended by about 50 participants) brought together many of the leading experts in the field of Limit Groups. This subject arose from Professor Zlil Sela's groundbreaking and beautiful solution of the Tarski conjecture concerning the elementary theory of free groups, which brought together logic, geometry, and algebra in a startling synthesis. The meeting was delighted to welcome Professor Sela and his fellow speakers Dr Cornelia Druţu and Professor Jim Howie to outline new progress in the field, demonstrating the vitality of the area.

The meeting started with Professor Howie's lecture on *Finitely presented residually free groups*, which play a central role in Sela's theory, and was then privileged to welcome the newest Whitehead Prize winner, Dr Cornelia Druţu, who spoke on

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Geometry and quasi-isometric rigidity of relatively hyperbolic groups. After Professor Sela took us on a tour Around the first order theory of a free group, we enjoyed a reception generously funded by the Oxford University Press and attended by many of the participants.

Following the LMS day we enjoyed two further days of lectures on the topic of limit groups started by an introductory talk given by Henry Wilton, and with lectures by Professors Dahmani, Guiradel, Kochloukova, Levitt, Minasyan and Bridson. We also took the opportunity to host a dinner in honour of Professor Martin Dunwoody, who did so much to establish the UK as a centre for geometric group theory. Jim Howie gave the toast and Professor Dunwoody's reply was delivered with his characteristic diffidence and great humour.

> Graham Niblo University of Southampton

REVIEWS

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Mathematicians of the World, Unite! The ICM – A Human Endeavour by Guillermo P. Curbera, A.K. Peters, 2009, 344 pp, £42.50, \$59.00, ISBN 978-1-56881-330-1.

The International Congresses of Mathematicians began with the 1897 Zürich Congress. From that time on, the Congresses have taken place approximately at four-year intervals except for periods during World War I and World War II when no Congresses took place. In total twenty-five Congresses have been held, the most recent being in Madrid in 2006. The book under review looks at each of these twenty-five Congresses, particularly examining their social sides. The Congresses are divided into five sections: The Origins, Crisis in the Interwar Period, The Golden Era, On the Road and In a Global World. Each section has a short introduction which explains to the reader some of the difficulties which have



been experienced by the Congresses as they tried to rise above the many political pressures and tensions which were inevitable given their worldwide nature. The atmosphere at each Congress is brought to life with many excellent pictures. Quotations from the opening address. details of music played, descriptions of the buildings in which the Congress was held, and details of exhibitions all help to

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paint a picture of the Congress. Numbers of mathematicians attending, together with their nationalities, show how the series of Congresses developed.

Relatively little information is given about the mathematical content of the Congresses

but the names of the plenary speakers, with titles of their talks, are given as are the mathematical sections into which each Congress was divided, and this information gives an indication of the changing trends in mathematical research. Between the chapters on the individual congresses, 'Interludes' are included. 'Images of the ICM' looks at logos, stamps and posters associated with the Congresses. 'Awards of the ICM' relates the

history of the Fields Medal, the Nevanlinna Prize and the Gauss Prize. 'Buildings of the ICM' contains excellent pictures of many of the buildings in which the congresses took place. 'Social Life at the ICM' is the longest and most important interlude in which the author examines how successful the Congresses have been in carrying out the aim set out at the 1897 Congress, namely to 'foster personal relations between mathematicians of different countries'.

The pictures from over 100 years of Congresses form a special feature of the book. These include Jacques Hadamard showing a bit of his striped underwear while sitting on the beach at Ravenna during the 1928 Congress, a rare picture of G.H. Hardy on a boat on Lake Zürich during the 1932 Congress, and Élie Cartan on a boat on Oslo's fjord during the 1936 Congress. The pictures succeed in bringing the Congresses to life and emphasise that the interactions of participants are the most important feature of these meetings. The book will bring back many memories for those who have attended the more recent congresses and will give those who have not attended an understanding of what they have missed.

> Edmund Robertson St Andrews University



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The Mathematical Mechanic – Using Physical Reasoning to Solve Problems by Mark Levi, Princeton University Press, 2009, 196 pp, £13.95, \$19.95, ISBN 978-0-69114-020-9.

This is a most interesting book. It has its origins in a friendly argument with a school friend who had 'majored' in physics, concerning the relative importance of the two subjects. Mark Levi also intended to specialise in physics eventually but only after mastering its main tool, mathematics.

Essentially the book is a collection of examples taken from the physical world which provide interpretations of mathematical proofs. The author is quite clear that these examples are not in themselves proofs, but most applied mathematicians will be familiar with the insight that physics or perhaps biology gives when developing new models. This insight sometimes indicates ways to approach the construction of proofs of new theorems, including on the estimation of bounds etc. which are required to provide a robust and reliable solution to a problem

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NEWSLETTER

situation. Anyone who has been involved in this process will certainly enjoy reading this book, no doubt with pencil and paper to hand!

My favourite example concerns saving a drowning swimmer using Fermat's principle; this involves building a mechanical analogue of the rescuing lifeguard's time-optimal strategy as (s)he runs over the beach and swims in the sea. The result is that the equivalent of Snell's law of refraction emerges. A close second is the use of a model involving the closure of a switch in a certain electrical circuit. This serves to reduce resistance from 1 to 0 in a section of the circuit and so by Rayleigh's monotonicity law (which is proved in the section), the overall resistance is the same or less. Choosing the circuit appropriately provides a demonstration that the arithmetic mean of two positive numbers is not less than their geometric mean.

Mark Levi is professor of mathematics at Pennsylvania State University and as well as inventing and collecting physical solutions to mathematical problems he collects physical devices which illustrate mathematical ideas. One of these is a jigsaw which he uses to demonstrate the stabilisation of an inverted pendulum using vibration. In this connection his work on Kapitsa potentials was published in the Society's journal Nonlinearity. The book has numerous references and an Appendix on the necessary physical background required. Some of the Chapters have a selection of problems at the end with some hints or solutions. As well as being an interesting book, many of the ideas in it could be used as motivational or illustrative examples to support the teaching of non-specialists, especially physicists and engineers.

In conclusion – a thoroughly enjoyable and thought-provoking read.

Nigel Steele Coventry University



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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).

OCTOBER 2009

6 A Sense of Balance, Gresham College Public Lecture, Museum of London (384)
21-22 Stochastic Processes at the Quantum Level Meeting, Aberystwyth (384)
27 Brilliant-cut Diamonds and other Tricks of the Light, Gresham College Public Lecture, Museum of London (384)

27 LIMS Evening Lectures, Bloomsbury Theatre, University College London (384) 29-30 Liquid Crystal Theory and Modelling Discussion Meeting, Oxford (385)

NOVEMBER 2009

5 Mathematical Curiosities and Treasures from Professor Stewart's Cabinet, Public Lecture, The Royal Society, London (384) 9-11 Dynamics of Outer Planetary Systems Conference, INI, Cambridge (382) 20 LMS AGM, London (385)

24 The Maths of Sorting Things Out, Gresham College Public Lecture, Museum of London (384)

30-10 Dec De Brún Workshop in Computational Algebra, Galway (384)

DECEMBER 2009

1 Forward with Hoare, Joint LMS/BCS–FACS Evening Seminar, Professor Mike Gordon, FRS

4-6 LMS–Belgian Mathematical Society joint meeting, Leuven

8-12 Operators and Operator Algebras Conference, Edinburgh (382)

JANUARY 2010

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4-8 Stochastic Partial Differential Equations
Workshop, INI, Cambridge (383)
11-15 New Topics at the Interface Between

Probability and Communications Workshop, INI, Cambridge (383)

12 Code Breaking in Everyday Life, Gresham College Public Lecture, Museum of London (384)

FEBRUARY 2010

9 *Trains and Boats and Planes*, Gresham College Public Lecture, Museum of London (384)

MARCH 2010

9 Maths and Sport, Gresham College Public Lecture, Museum of London (384)

APRIL 2010 6-9 BCME7, Manchester (385)

JULY 2010 2 LMS Meeting, London

AUGUST 2010

17-18 International Conference of Women Mathematicians 2010, Hyderabad, India (384)

19-27 International Congress of Mathematicians 2010, Hyderabad, India (382)

LMS CONFERENCE FACILITIES

Organising a conference in central London? Meeting rooms and catering are available in De Morgan House. For terms and availability, please call 020 7927 0800 or email roombookings@demorganhouse.co.uk. 23

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D. MACALISTER LMS member 1879–1883



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Donald MacAlister, MA and MB Cambridge, BSc London, MRCP, FCPS Member of the Physical Society Fellow of, and Medical Lecturer at, St John's College, Cambridge Principal, University of Glasgow 1907–29 Appointed KCB 1908, created a Baronet 1924 Honorary doctorates from 13 universities

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C. Ferranti, Liverpool