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#### No. 377 January 2009

## Society Meetings and Events

#### 2009

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Wednesday 14 January Northern Regional Meeting, Manchester [page 3]

Friday 27 February Mary Cartwright Lecture, London [page 5]

**31 March – 4 April** LMS Invited Lectures Edinburgh [*page* 9]

Friday 3 July London

Wednesday 15 July SW & South Wales Regional Meeting Southampton

Wednesday 16 September Midlands Regional Meeting, Leicester

Friday 20 November AGM, London

**4–6 December** Joint Meeting with the Belgian Mathematical Society

### COUNCIL DIARY 21 November 2008

The meeting began, under Matters Arising, with an update on the financial situation as it affects the LMS, which can be summarised as 'gloomy but could be worse'. Under President's Business, Brian Davies recalled that Susan Oakes, the longstanding LMS Administrator, was shortly to retire. He noted, moreover, that Council had been canvassed by email regarding the proposal to name the De Morgan House archive room the Oakes Room in her honour, in recognition of Susan's contributions to the Society, particularly her work in developing the archives and preserving the history of the LMS. This proposal met with the enthusiastic support of the Council.

The Council also received a report from the President on the programme of consultation of members of the LMS and IMA that has taken place over the previous few months on the proposal to merge the two societies. In addition to a dedicated website and many letters received. the two presidents together made 22 visits to present the detailed and carefully thought through proposals to members and receive feedback. We expressed our gratitude to Brian and David Abrahams of the IMA for their efforts. Brian observed that the two presidents had formed an extremely good working relationship, and noted that, even with this fairly intensive programme of

visits, they had only reached a very small number (perhaps 400) of the members of the two societies, so that it was difficult to form any clear idea of members' views in the large. The Council rapidly agreed to proceed to the next stage, namely a referendum on the proposal that the Council is commending to the LMS members, to combine in a new unified mathematics society with the IMA.

Penny Davies, in her role as our representative on the EPSRC liaison group of the Council for the Mathematical Sciences, reported on a recent meeting of the group with David Harman, the Mathematical Sciences Programme Head, his team and other EPSRC representatives. The news was rather dismal in terms of funding for mathematics activity on two fronts: the Mathematical Sciences Programme budget will fall by another £2M next year to £14M, having been £21M two years ago; funding for many Mathematics MSc courses by EPSRC is disappearing as a consequence of the move from funding for training via EPSRC's CTA scheme to its less mathematics friendly KTA scheme. Annovingly for departments hoping to compete for more studentship funding, there would be no new DTA allocation exercise this year and no competitive Mathematics CASE scheme. Penny noted, as an item of good news for mathematics funding, that announcement of a Science and Innovation award was expected in



#### NEWSLETTER

Numerical Analysis and High Performance Computing imminently, with a strong numerical analysis emphasis. Issues related to EPSRC funding of mathematics will be taken up by CMS in a meeting with the EPSRC Chief Executive David Delpy in early December.

The largest part of a rather short afternoon, before moving to UCL for the AGM, was taken up with a presentation from the Programme Secretary, Stephen Huggett, on the work of the Programme Committee. His committee, with a modest budget of less than £250,000 a year in arant funding to distribute, is doing a fantastic job assessing large numbers of proposals and providing partial support for a significant number of conferences and meetings (over 45 in the last year) and small grants for many visitors and collaborative projects. They are achieving a formidable 'theorems per pound' ratio and grant schemes with good success rates. But of course, these modest amounts of LMS money do not make up for falls in EPSRC support for the careers of young mathematicians, via studentship and postdoc funding.

Simon Chandler-Wilde

## ANNUAL REPORT ON ACTIVITIES

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The Annual Report on Activities (ARA) for the period 1 August 2007 – 31 July 2008 is now available to view online at www.lms.ac.uk/ contact/about\_the\_lms.html.

The ARA aims to present the Society's achievements during the year in an accessible way, and in doing so the report gives a comprehensive overview of the range of activities that the Society is involved in. It is hoped that members will take pleasure in referring to the many activities their membership supports, and will find it useful when describing the Society's work to others.

Several copies of the ARA have been sent to each UK mathematics department for 'coffee table' use; Members may request their own copies by contacting De Morgan House. As ever, feedback on the effectiveness of this report is also welcomed. Copies of the Trustees' Report and Annual Accounts (a more formal document prepared for the Charity Commission) are also available on request.

## **LMS Newsletter**

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Charity registration number: 252660.

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## LONDON MATHEMATICAL SOCIETY NORTHERN REGIONAL MEETING

## Room G107, Alan Turing Building, University of Manchester Wednesday 14 January 2009

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- 14.00 Opening of the Meeting
- 14.15 Imre Leader (Cambridge) Euclidean Ramsey Theory
- **15.15 Kathryn Hess** (EPFL, Switzerland) Free loop spaces in topology and physics
- 16.15 Tea/Coffee
- **16.45 Paul Baum** (Penn State, USA) What is K-theory and what is it good for?
- 18.00 Dinner at the Tai Pan restaurant

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 magic@ maths.manchester.ac.uk. The cost of the dinner will be approximately  $\pounds 25$  including drinks.

The meeting is preceded by the postgraduate student conference MAGIC09 from Monday 12 January to mid-day on Wednesday 14 January. For further details visit www.maths.manchester.ac.uk/~magic or contact the organisers Dr Marianne Johnson, Dr Andrew Hazel, Gemma Lloyd, Hadi Zare at magic@maths.manchester.ac.uk.

Lunch will be provided on Wednesday for delegates of the MAGIC09 conference. This lunch is also open to everyone attending the meeting.

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 Marianne Johnson (email above).

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#### NEWSLETTER

## PREPARE TO VOTE

At their November meetings, both the Council of the LMS and that of the IMA agreed to go to a vote of their respective Members on the proposal to form a new unified mathematical society, replacing both the LMS and the IMA. The referenda will take place between January and March, and you can expect to receive voting papers and instructions shortly.

Both Councils are anxious to achieve a high turnout in the voting, and that Members should make an informed choice. In support of both aims your President, Brian Davies, and the President of the IMA, David Abrahams, embarked on an extraordinary 'roadshow' over a 6-week period in October and November, visiting no less than 22 departments around the whole of the UK. We, the Members, owe them an immense debt of gratitude for putting themselves so wholly at the service of the two societies and their future in this way. If you missed the roadshow you can nevertheless still experience it by going to the 'presentations' page of www.newmathsoc.org.uk, where there is a video of what was said, and a copy of the overheads.

The Presidents are aware that despite all their time on the road – not to mention hours on railway platforms and at airport departure gates – they were still able to connect only with a modest proportion of members. They were heartened, though, by the messages of support arriving at the 'responses' page of www.newmathsoc.org.uk, and in particular those from Sir Michael Atiyah, a past President both of the LMS and of the Royal Society, and from the Royal Society itself, signed by the President, Lord Rees, and the Physical Secretary, Martin Taylor, himself also a past LMS President.

The website www.newmathsoc.org.uk is now well stocked with information and discussion. It includes an online copy of the consultation document *A New Unified Mathematical Society* circulated last September, but there is much more. Everyone is encouraged to come to an informed view for this most crucial decision, and then, above all, to vote.

Charles Goldie General Secretary

## PRIZES DEADLINES

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Readers are reminded that the deadline for receipt of nominations for the 2009 LMS Prizes is 23 January 2009.

Prizes available in 2009 include the Pólya Prize, the Senior Whitehead Prize, the Naylor Prize and Lectureship in Applied Mathematics, the Berwick Prize, and up to four Whitehead Prizes. A nomination form can be downloaded from www.lms.ac.uk. The deadline for the IMA-LMS David Crighton Medal is **28 February 2009**. For full details of all these prizes please see the December LMS Newsletter (No. 376) or email prizes@lms.ac.uk.

## ROYAL SOCIETY ROSALIND FRANKLIN AWARD

The Royal Society Rosalind Franklin Award is designed to promote women in Science, Technology, Engineering and Mathematics (STEM) and is funded by the Department for Innovation, Universities and Skills (DIUS).

The award, consisting of a medal and £30,000, is made annually to an individual for an outstanding contribution to any area of STEM. As part of the nomination process nominees are asked to put forward a proposal for a project that would raise the profile of women in STEM in their host institution and/or field of expertise in the UK. The recipient of the award will be expected to spend a proportion of the £30,000 award fund on implementing their project.

There are no restrictions on the age of nominees, but it is anticipated that the award will be made to someone in their mid-career and actively involved in scientific research. Nominations are welcomed for both women and men.

For full details of the Award and guidelines for nomination, including the online nomination forms, visit royalsociety.org/franklin. Closing date for nominations: Monday 23 February 2009

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## LONDON MATHEMATICAL SOCIETY MARY CARTWRIGHT MEETING

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Friday 27 February 2009

Clore Lecture Theatre, Department of Mathematics, Imperial College London

#### 3.30 Opening of the Meeting

**Simon Donaldson, FRS** (Imperial College London) A spectator's commentary on symplectic topology

The talk will survey some of the developments of modern symplectic topology over the past 30 years, aimed at non-specialists. We will discuss the developments of pseudoholomorphic curve techniques, Floer homology, connections with geometric topology in 3 and 4 dimensions and the theory of complex algebraic surfaces.

4.30 Tea

#### 5.00 Mary Cartwright Lecture

**Dusa McDuff, FRS** (Barnard College, Columbia University) Symplectic embeddings of 4-dimensional ellipsoids

Gromov's celebrated nonsqueezing theorem of 1985 says that it is impossible to embed symplectically a large ball into a thin cylinder. One of the foundational results of modern symplectic topology, this led to a more or less complete solution of the 4-dimensional symplectic packing problem (which asks when a given disjoint union of balls can be symplectically embedded into another ball). However, there are many other packing problems. In this talk we discuss recent joint work with Schlenk about the constraints on embedding a symplectic ellipsoid into a ball. This leads to some intriguing elementary questions in number theory. The result has applications to constructing 6-dimensional manifolds with symplectic circle action.

The talk does not use much symplectic topology and will be accessible to graduate students and nonspecialists.

A reception and dinner will be held after the meeting. Contact Susan Oakes (susan.oakes@lms.ac.uk) for further information.

There are limited funds available to contribute in part to the expenses of members of the Society or research students to attend the meeting. Contact Isabelle Robinson (isabelle.robinson@lms.ac.uk) for further information.

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#### NEWSLETTER

The London Mathematical Society



## Cecil King Travel Scholarship

The London Mathematical Society annually awards a  $\pm$ 5000 Cecil King Travel Scholarship in Mathematics to a young mathematician of outstanding promise. The Scholarship is awarded to support a period of study or research abroad, typically for a period of three months.

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The award is competitive and based on a written proposal describing the intended programme of study or research abroad and the benefits to be gained from such a visit. A shortlist of applicants will be selected for interview.

Applicants should normally be nationals of the UK or Republic of Ireland, either registered for or having recently completed a doctoral degree at a UK University.

Applications should be made using the form available on the Society's website (www.lms.ac.uk/activities/cecil\_king/ index.html) or from Antony Bastiani at the Society (antony.bastiani@lms.ac.uk). The closing date for applications is **Friday 20 February 2009**. It is expected that interviews will take place in London in late April or early May.

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

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## **Post Quantum**

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D. J. Bernstein, University IL, USA: J. Buchmann, E. Dahmen, Technical University, Darmstadt,

challenge in cryptography, namely: what to do when someone will break the crypto-systems of today.

#### **Twentieth Anniversary Volume:**

J. E. Goodman, City College, CUNY, NY, USA; J. Pach, R. Pollack, Courant Institute, NYU, NY, USA (Eds.)

This commemorative book contains the 28 major articles that appeared in the 2008 Twentieth Anniversary Issue of the journal Discrete & Computational Geometry, and presents a comprehensive picture of the current state of the field.

2009. XVIII, 635 p. 212 illus. Softcover ISBN 978-0-387-87362-6 ► € 62,95 | £49.99

## **Granting the Seasons**

The Chinese Astronomical Reform of 1280, With a Study of Its Many **Dimensions and a Translation of its** Records

springer.com

N. Sivin, University of Pennsylvania, Philadelphia, PA, USA

Nathan Sivin is the West's leading scholar of Chinese science, and this book is the result of 30 years of research.

2009. VI, 664 p. 49 illus. Sources and Studies in the History of Mathematics and Physical Sciences Hardcover

ISBN 978-0-387-78955-2 ► € 46,95 | £37.99

#### **Principles of Harmonic Analysis**

A. Deitmar, University of Tübingen, Germany; S. Echterhoff, University of Münster, Germany

The present book is intended as a text for a graduate course on abstract harmonic analysis and its applications.

2009. Approx. 345 p. Universitext Softcover ISBN 978-0-387-85468-7 ► € 34,95 | £27.99

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#### NEWSLETTER

## 2008–09 COUNCIL

As a result of the annual election, membership of the Council is the following:

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President Vice-Presidents

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Treasurer General Secretary Programme Secretary Publications Secretary Education Secretary Members-at-Large

Professor E.B. Davies, FRS (King's College London) Professor D.G. Larman (University College London) Professor F.A. Rogers (King's College London) Professor N.M.J. Woodhouse (Oxford) Professor C.M. Goldie (Sussex) Dr S.A. Huggett (Plymouth) Professor K.J. Falconer, FRSE (St Andrews) Professor C.J. Budd (Bath) \* Dr J.E. Barrow-Green (Open University) Professor A.V. Borovik (Manchester) Dr D.E. Buck (Imperial College London) \* Professor S.N. Chandler-Wilde (Reading) Professor H.G. Dales (Leeds) \* Dr P.J. Davies (Strathclyde) \* Professor I.G. Gordon (Edinburgh) \* Professor A. Laptev (Imperial College London) Professor U.L. Tillmann, FRS (Oxford)

\* Professor B.J. Totaro (Cambridge) Professor A.J. Wilkie, FRS (Oxford) Dr E. Winstanley (Sheffield)

\* Members continuing the second year of their two-year election in 2007

## MATHEMATICS POLICY ROUND-UP

Sir Alan Langlands, Principal and Vice-Chancellor of the University of Dundee, has been appointed Chief Executive of the Higher Education Funding Council for England (Hefce). He takes up the post on 1 April 2009, succeeding Professor David Eastwood. Before taking up his current position, Sir Alan was Chief Executive of the National Health Service in England from 1994 to 2000. He has an international reputation in the development of healthcare policy and as a strategic manager of health services. He received a knighthood in the Queen's Birthday Honours list in 1998 for his services to the NHS and is a Fellow of the Royal Society of Edinburgh. Currently Sir Alan is also Chair of UK Biobank Ltd, a joint venture company set up by the Wellcome

Trust and the Medical Research Council to oversee a major genetic epidemiology study; he is also a non-executive director of the Office for the Strategic Coordination of Health Research and the UK Statistics Authority.

Hefce has updated its webpages for the pilot of the Research Excellence Framework. It has added two 'think-pieces' on bibliometrics by Linda Butler, at www.hefce.ac.uk/ research/ref/pilot. Information on the September pilot briefing meeting can be found on the pilot data collection page: www.hefce. ac.uk/research/ref/pilot/datacoll.

The government-funded STEM Directories project has completed three directories (on Science, Engineering and Technology and Mathematics) listing the enrichment and enl UK tea loa the Lin als site Edu too I an νοι ma by and scie ain to pro og wh to The des we org

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enhancement activities going on in the UK. The directories are primarily aimed at teachers. Electronic versions can be downloaded from www.stemdirectories.org.uk or the Mathematical Resources section under Links on the LMS website. Hard copies can also be ordered from the STEM directories site. The Advisory Committee on Mathematics Education (ACME) was involved in putting together the mathematics directory.

In November, the government launched an advertising campaign to encourage more young people to study science and mathematics post-16. The campaign is to be headed by Kate Bellingham, a mathematics teacher and a former presenter of BBC television's science programme Tomorrow's World. The aim of the Science and Maths campaign is to present the government's joined-up approach to take-up of STEM (science, technology, engineering and mathematics) careers whilst encouraging the STEM community to work more closely together to do this. The campaign has produced advertisements designed for television and the cinema as well as publicity for the www.FutureMorph. org and www.scienceandmaths.net websites. A stakeholder guide is available at www. teachernet.gov.uk/publications.

Caroline Davis Mathematics Policy and Promotion Officer

### MAURICE AUSTIN

Mr Maurice C. Austin, who was elected a member of the London Mathematical Society on 28 April 1949, died on 31 October 2008, aged 86.

#### PETER PLEASANTS

Dr Peter A.B. Pleasants, who was elected a member of the London Mathematical Society on 17 March 1978, died on 20 April 2008, aged 65.

#### LMS INVITED LECTURES

#### Professor A.D. lonescu Black Holes in Vacuum

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31 March – 4 April 2009

The 2009 LMS Invited Lectures will be given by Professor A. Ionescu (University of Wisconsin, Madison) on *Black holes in vacuum: examples and uniqueness properties.* 

The Lectures will take place at the University of Edinburgh from 31 March to 4 April 2009.

For further information contact Jim Wright (jim.wright@ed.ac.uk) .

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## MICHAEL FARADAY PRIZE LECTURE

The Royal Society Michael Faraday Prize Lecture will be given by Professor John Barrow, FRS (University of Cambridge) on Tuesday 24 February 2009 at 5.30 pm at The Royal Society, London.

This lecture is free – no ticket or advanced booking required. Doors open at 4.45 pm and seats will be allocated on a first-come-firstserved basis. This lecture will be webcast live at royalsociety.org/live and available to view on demand within 48 hours of delivery.

Abstract. We look at the role of pictures and images in the development of science. From the first graphs and illustrated books to Molscript, the influence of the first pictures of spiral galaxies on Van Gogh's 'Starry Night', to the artistic resonances of the Hubble Space Telescope's images, the mushroom cloud of the atomic bomb, and the intricacy of fractals, we will see how pictures have influenced science and spearheaded its communication to the public today.

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#### NEWSLETTER



The London Mathematical Society



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# FACILITATOR FOR THE SHORT INSTRUCTIONAL COURSES IN MATHEMATICS

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The Society is seeking to appoint a Facilitator for the Short Instructional Courses, run under a contract with the EPSRC, to succeed Professor Alan Camina. The Facilitator is responsible for:

a) consulting widely and bringing forward suggestions of topics for Short Courses to the Research Meetings Committee and organising and administering the refereeing system for proposals

b) recruiting organisers for Short Courses, advising on the preparation of the scientific case and liaising with the local conference organisers at the chosen sites

c) working with De Morgan House staff on aspects relating to publicity, participation and organisation of the short courses

d) advising on the budget of each Short Course, providing the Research Meetings Committee with an assessment of each course and ensuring that the terms of the contract with EPSRC are met.

The post is part time, one day per week, normally working from home or an existing institution. Some attendance at meetings in London is required. For further information and to discuss the position, please contact Peter Cooper, Executive Secretary (email: peter.cooper@lms.ac.uk; tel: 020 7291 9970).

## THE STORY OF MATHS

Following Professor Marcus du Sautoy's highly acclaimed television series, The Story of Maths (see review in *Newsletter*, December 2008) the Open University has launched a 10-week online course. The series was a collaboration between the OU and broadcaster BBC Four.

The course traces the development of mathematics from its origins in Egypt and Mesopotamia 4000 years ago to twentiethcentury Europe and the US. Students will explore mathematical ideas in an historical and cultural context, and they are explained in an entertaining and accessible way. The television programmes on DVD are accompanied by downloadable printable commentaries and Anne Rooney's book *The Story of Mathematics*. This course can either be studied on its own or as introduction to further study in mathematics and the sciences.

It should be accessible to anyone with GCSE mathematics or its equivalent and there are no formal entry requirements. For more information see www.openuniversity.co.uk/ storyofmaths or telephone +44 (0)870 333 4340.



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#### NEWSLETTER

## **ANNUAL LMS SUBSCRIPTION 2008/09**

The Society is appreciative of those members who have paid their 2008/09 subscriptions. May we remind those who have not yet paid that subscriptions were due on 1 November 2008. Prompt payment ensures continuity of publications and avoids the need for time-consuming reminders. The Society reserves the right to discontinue the supply of periodicals and the *Newsletter* to members whose subscription remains unpaid by **31 January 2009**.

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The methods of payment are either by a Sterling cheque drawn on a UK bank, a US\$ cheque drawn on a US bank, direct debit or credit card. It is our preference that members who have a UK bank account should pay by direct debit. Request a direct debit mandate to take advantage of this convenient form of payment. If you have misplaced your renewal-of-subscription form, either download the form from the membership section of the LMS website (www.Ims.ac.uk) or contact the LMS office (email: membership@Ims.ac.uk; tel: 020 7637 3686; fax: 020 7323 3655).

LMS members who wish to pay their European Mathematical Society subscription via the LMS may do so; the relevant costs are shown below.

#### Individual members 2008/09 rates:

Subscriptions	£	US\$
Ordinary	47.50	95.00
Reciprocity	23.75	47.50
Associate	12.00	24.00
Publications		
Bulletin Volume 41	51.00	102.00
Journal Volumes 79 & 80	97.00	194.00
Proceedings Volumes 98 & 99	97.00	194.00
JCM (electronic) Volume 12	free	free
Nonlinearity Volume 22 – except North America	66.00	
– North America		170.00
European Mathematical Society		
Annual subscription for those paying via the LMS	19.00	38.00
Journal of the European Mathematical Society Volume 11	68.00	136.00

## LMS GRANT SCHEMES

Members are reminded of the Society's Schemes to provide conference grants (Scheme 1), grants to visitors to the UK (Scheme 2), grants to support joint research groups (Scheme 3), collaborative small grants (Scheme 4), international short visits (Scheme 5), and grants for postgraduate research conferences (the new Scheme 8). For full details of all the Schemes please see the Society's website (www.lms.ac.uk/ grants/index.html). Queries regarding applications can be addressed to the Programme Secretary, Stephen Huggett (tel: 01752 586869, email: s.huggett@plymouth.ac.uk) or the Secretary to Programme Committee, Sylvia Daly (tel: 020 7291 9971, email: sylv wil adv tio cor 200 we

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ase uk/ plime 752 uk) nitail: 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.

The next deadline for receipt of applications is **31 January 2009** and these will be considered at a meeting on 20 February 2009. 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 us to deal with the application.

#### Closing dates for 2009

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Future deadlines for receipt of applications are 15 May and 15 September 2009, and these will be considered at meetings in June and October respectively.

#### Grants awarded between June and November 2008

#### Scheme 1

Applicant	Title	Grant
V. Sorge	Conference on Intelligent Computer Mathematics (CICM-2008)	
D. Benson	Modern Themes in Algebraic Topology, Group Theory and Representation Theory	
J. Warren	Probability at Warwick Postgraduate Workshop 2009	£500
S. Goodwin	Representation Theory of Finite Groups of Lie Type and their Subgroups	
N. Laustsen	Banach Spaces, Operators and Inequalities - One-day meeting in honour of Graham Jameson	£2,640
J. Scott	Sparse Matrices for Scientific Computation: In Honour of John Reid's 70th Birthday	
S. Petrovskii	Mathematical Models of Collective Dynamics in Biology and Evolution	
O. Jensen	British Applied Mathematics Colloquium 2009	£5,000
M. Rathjen	Proofs and Computations	
N. lyudu	Algebra, Combinatorics and Dynamics	£5,400
M. Ruzhansky	7th ISAAC Congress (International Society for Analysis, its Applications and Computation)	
I. Leader	Algebra and Analysis around the Stone-Čech Compactification	
J. Nimmo	Geometric Aspects of Discrete and Ultra-discrete Integrable Systems	
S. Huczynska	22nd British Combinatorial Conference	
A. Scott	One-Day Meeting in Combinatorics	
N.J. Cutland	Logic and Mathematics 09	

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## NEWSLETTER

#### Scheme 2

Applicant	Visitor	To Visit	
A. Parker	K. Baur	Bath, Birmingham, Oxford, Leeds	£550
E. Ferapontov	M. Pavlov	Imperial College, Loughborough, Glasgow	£1,200
A. Seregin	V. Solonnikov	Oxford, Warwick, King's College London	£1,100
E. Kissin	V. Shulman	London Metropolitan, Leeds, QUB	£1,200
J. Scott	F. Wubs	Rutherford Appleton Laboratory/Oxford, Reading, Brunel	£1,000
A. Pushnitski	G. Rozenblum	King's College London, Cardiff, Bristol	£950
S. Rees	C. Bleak	Glasgow, Newcastle, Southampton	£1,200
E. Buckwar	C. Kelly	Heriot–Watt, Strathclyde, Warwick	£1,141
V. Goryunov	A. Davydov	Liverpool, Durham, Leeds	£1,200
Y. Capdeboscq	H. Ammari	University College London, Oxford, Manchester	£1,160
B. Everitt	J. Ratcliffe	York, Warwick, Durham	£980
J. Giansiracusa	K. Igusa	Sheffield, Leeds, Oxford	£465
N. Peyerimhoff	I. Veselic	Durham, University College London, Bristol	£1,200

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## Scheme 3

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Applicant	Institution	Title	Grant
C. Morgan	University College London	Set Theory and its Neighbours	£350
M. Kambites	Manchester	North British Semigroups and Applications Network (NBSAN)	£,1050
G. Sankaran	Bath	Algebraic Geometry Seminar (COW)	£1,375
S. Rees	Newcastle	North British Geometric Group Theory (NBGGT) Seminar	£1,050
A. Fordy	Leeds	Classical and Quantum Integrability	£1,400
N. Snashall	Leicester	Bristol, Leicester, Oxford City Colloquium (BLOC)	£1,400
M. Levitin	Cardiff	Wales Analysis Cluster	£1,200
R. Klages	QMUL	London Dynamical Systems Group (LDSG)	£1,400
S. Pott	Glasgow	North British Functional Analysis Seminar (NBFAS)	£1,000

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Applicant	Institution	Title	Grant
E. Lytvynov	Swansea	Scaling Limits of Particle Stochastic Dynamics in Continuum	£1,400
J. Brodzki	Southampton	K-Theory and Analysis	£478
R. Sharp	Manchester	Ergodic Theory	£1,361
J. Greenlees	Sheffield	Transpennine Topology Triangle (TTT)	£1,400
A. Craw	Glasgow	The Edinburgh–Glasgow–Aberdeen (EGA) Algebraic Geometry Seminar	£1,400
R. Hoyle	Surrey	Patterns, Nonlinear Dynamics and Applications (PANDA)	£1,050
B. Klopsch	Royal Holloway	South England Profinite Groups Meetings	£717
D. Evans	Cardiff	Operator Algebras and Noncommutative Geometry (OA-NCG)	£1,200
B. Winn	Loughborough	East Midlands Mathematical Physics Seminar	£808
X-M. Li	Warwick	East-Midland Stochastic Analysis Seminars	£1,400

#### Scheme 3 (continued)

#### Scheme 4

Applicant	Institution	Collaborator	Institution	Grant
G. Everest	East Anglia	A. Shlapentokh	East Carolina	£600
E. Ferapontov	Loughborough	B. Doubrov	Belarussian State	£600
S. Theriault	Aberdeen	J. Wu	National University of Singapore	£600
S.B. Cooper	Leeds	B. Csima	Waterloo, Canada	£600
T. Ward	East Anglia	R. Miles	Kungliga Tekniska Högskolan, Sweden	£600
A. Ivanov	Imperial College	M. Aschbacher	California IT	£600
V. Didelez	Bristol	M. Eichler	Maastricht	£600
K. Mackenzie	Sheffield	A. Gracia-Saz	Toronto	£505
M. Stannett	Sheffield	I. Németi, H. Andreki	Hungarian Academy of Sciences	£500
Scheme 5				

# ApplicantVisitorInstitutionTo VisitGrantP. MortersK. Doku-AmponsahGhanaBath£1,300

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#### NEWSLETTER

## LONG-STANDING MEMBERS

The following is a list of mathematicians who have completed fifty years or more of membership of the London Mathematical Society, with their date of election.

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17 Dec 1940 Good, I.J. 17 Mar 1943 Dvson, F.J. 15 Jun 1944 Williams, A.E. 25 Jan 1945 Collard, K. 25 Jan 1945 Ollerenshaw, K. 28 Jun 1945 Tropper, A.M. 23 May 1946 Huppert, E.L. 23 May 1946 Rees, D. 16 Jan 1947 Macbeath, A.M. 20 Mar 1947 Hayman, W.K. 22 May 1947 Ghaffari, A. 19 Jun 1947 Cassels, J.W.S. 27 Nov 1947 Hilton, P.J. 18 Mar 1948 Isaacs, G.L. 18 Mar 1948 Reade, M.O. 17 Jun 1948 Bateman, P.T. 18 Nov 1948 Mullender, P. 13 Dec 1948 Fishel, B. 20 Jan 1949 Borwein, D. 17 Mar 1949 Kilmister, C.W. 19 Jan 1950 Shepherdson, J.C. 16 Feb 1950 Lehner, J. 23 Mar 1950 Ponting, F.W. Patterson, E.M. 14 Dec 1950 19 Apr 1951 Chen, D.L.C. 17 May 1951 Roth, K.F. 14 Jun 1951 Jackson, M. 14 Jun 1951 Ledermann, W. 20 Dec 1951 Dowker, Y.N. 20 Dec 1951 Herszberg, J. 17 Jan 1952 Wilson, D.H. 15 Feb 1952 Shephard, G.C. 20 Mar 1952 Bonsall, F.F. 20 Mar 1952 Swinnerton-Dyer, H.P.F. 20 Nov 1952 Knight, A.J. 18 Dec 1952 Reeve, J.E. 18 Jun 1953 Marstrand, J.M. 18 Jun 1953 Rayner, M.E. 17 Dec 1953 Ringrose, J.R. Samet, P.A. 17 Dec 1953 Zeeman, E.C. 21 Jan 1954 18 Feb 1954 Cohen, D.E. James, I.M. 18 Feb 1954 17 Jun 1954 Taylor, S.J. 25 Nov 1954 Amson, J.C. 25 Nov 1954 Halberstam, H. 16 Dec 1954 Preston, G.B.

27	lan 1955	Ativah Michael
24	Feb 1955	Ravner Fl
2/1	Mar 1955	Farabat HK
12	May 1955	Harron R
12	May 1955	Murdoch B H
12	May 1955	
12	Doc 1955	Armitage IV
15	Dec 1955	Anniage, J.V.
10	Jap 1955	Bowers LE
15	Jan 1950	Edmunde D E
15	Mar 1056	Horrocks C
10	Apr 1056	Poproco P
19	Apr 1950	Colling M/D
14	Jun 1950	Noble M.F.
14	Jun 1950	NODIE, IVI.E.
14	Jun 1956	Perry, K.L.
15	NOV 1956	Edwards, D.A.
14	Mar 1957	Brown, R.
14	Mar 1957	Dunnage, J.E.A.
13	Jun 1957	Brown, L.
13	Jun 1957	Wiegold, J.
18	Jun 1957	Russell, D.C.
21	Nov 1957	Wallington, J.E.
19	Dec 1957	Adamson, I.I.A.C.
19	Dec 1957	Divinsky, N.J.
19	Dec 1957	Everitt, W.N.
19	Dec 1957	Hall, J.A.P.
19	Dec 1957	Longdon, L.W.
19	Dec 1957	Mohamed, I.J.
19	Dec 1957	Monk, D.
19	Dec 1957	Moran, S.
19	Dec 1957	Newman, M.F.
19	Dec 1957	Schneider, H.
16	Jan 1958	Flanders, H.
20	Feb 1958	Clunie, J.G.
20	Feb 1958	Kovari, T.
20	Mar 1958	Keedwell, A.D.
20	Mar 1958	Wallace, D.A.R.
17	Apr 1958	Macdonald, I.G.
15	May 1958	Foster, D.M.E.
19	Jun <sup>´</sup> 1958	Green, J.A.
20	Nov 1958	Riaby, J.F.
17	Dec 1958	De Barra, G.
18	Dec 1958	Birch, B.J.
18	Dec 1958	Hallett, J.T.
18	Dec 1958	Higgins, P.J.
18	Dec 1958	McLeod, J.B.
18	Dec 1958	Miller, J.B.

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#### NEWSLETTER



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### Plato's Ghost

The Modernist Transformation of Mathematics

#### Jeremy Gray

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"In this impressive synthesis, Gray brings, in a largely nontechnical way, the technical development of mathematics from the 1880s to the 1930s into the broader historical analysis of the concept of modernity. His argument promises not only to challenge historians of mathematics but also, finally, to bring mathematics into wider discussions of cultural history."

---Karen Hunger Parshall, author of James Joseph Sylvester: Jewish Mathematician in a Victorian World

Cloth \$45.00 £26.95 978-0-691-13610-3

#### Mathematics in India

Kim Plofker

*"Mathematics in India* presents an accessible, readable, and well-informed treatment of the history of India's mathematical traditions. It includes topics discussed little to date: the social setting of the mathematicians, the textual practices learned in Sanskrit, and the realm of observational and timekeeping practices. The survey of the Kerala school and the later life of Indian mathematics are detailed, unique, and valuable." —Christopher Minkowski, University of Oxford

Cloth \$39.50 £23.95 978-0-691-12067-6 February



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## The Structure of Affine Buildings

Richard M. Weiss

#### The Structure of Affine Buildings Richard M. Weiss

Phillip A. Griffiths, John N. Mather, & Elias M. Stein, Series Editors

Richard Weiss gives a detailed presentation of the complete proof of the classification of Bruhat-Tits buildings first completed by Jacques Tits in 1986. The book includes numerous results about automorphisms, completions, and residues of these buildings. It also includes tables correlating the results in the locally finite case with the results of Tits's classification of absolutely simple algebraic groups defined over a local field.

Annals of Mathematics Studies Philip A. Griffiths, John N. Mather, & Elias M. Stein, Series Editors Paper \$49.95 £29.95 978-0-691-13881-7 Cloth \$99.50 £59.95 978-0-691-13659-2

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Classifying Spaces of Degenerating Polarized

Kazuya Kato & Sampei Usui

Paper \$55.00 £32.95 978-0-691-13822-0

Cloth \$80.00 £46.95 978-0-691-13821-3 February

In 1970, Phillip Griffiths envisioned that points

at infinity could be added to the classifying space D of polarized Hodge structures. In this book, Kazuya Kato and Sampei Usui realize this dream by creating a logarithmic Hodge theory. They use the logarithmic structures begun by Fontaine-Illusie to revive nilpotent orbits as a logarithmic

**Hodge Structures** 

Hodge structure. Annals of Mathematics Studies

#### NEWSLETTER

## INTERNATIONAL CENTRE FOR MATHEMATICAL SCIENCES

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#### **Call for Proposals**

Proposals are now invited for the new International Centre for Mathematical Sciences (ICMS) Research-In-Groups (RiGs) programme. RiGs will enable researchers to spend a short period in intensive research collaboration 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 involving overseas collaborators.

ICMS is also inviting proposals for workshops to take place in 2010. Proposals can be submitted up to the end of March 2009 for consideration by the Programme Committee in July 2009. Potential organisers should contact Irene Moore, Centre Manager at ICMS, to discuss ideas and timetables before submitting a firm proposal (irene.moore@icms. org.uk).

Further information on both programmes is available at http://www.icms.org.uk/proposals. php

#### New venues

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2009 sees the start of a new relationship between ICMS and the National e-Science Centre (NeSC). ICMS will now hold most of its larger workshops (with more than 35 delegates) at the National e-Science Centre and will also have an office in the building. Situated at 15 South College Street, Edinburgh, NeSC is close to road and rail links, local amenities and major buildings of University of Edinburgh. The building houses a fully-appointed 108seat lecture theatre as well as smaller meeting rooms, breakout space and catering facilities and is fully accessible to delegates with reduced mobility including wheelchair users.

We are also widening the range of venues used in 2009 to include the new Informatics

Forum at the University of Edinburgh. More details of our workshop venues can be found via the ICMS website http://www.icms.org. uk.

Workshops at ICMS – spring and summer 2009 Information about the following workshops can be found at www.icms.org.uk/ forthcomingWorkshops.php.

- Adaptivity, robustness and complexity of multiscale algorithms
   30 March – 3 April
- Categorification and geometrisation from representation theory
   13–18 April
- Geometry and physics: Atiyah80
   20–22 April (Applications close on
   15 January a limited number of places remain available.)
- Stochastic population dynamics and applications in spatial ecology
   15–20 June
- Recent developments and new directions in thin-film flow
   6–9 July
- Emerging modelling methodologies in
- Emerging modeling methodologies m medicine and biology
   20–24 July
- Matrix group recognition 27–31 July
- Kinetic and mean-field models in the socio-economic sciences
   27–31 July

#### **ISAAC NEWTON INSTITUTE**

#### **Call for Proposals**

The Isaac Newton Institute for Mathematical Sciences is a national research institute in Cambridge. It aims to bring together mathematical scientists from UK universities and leading experts from overseas for in fro ics an A gra tw wit of ins Sev cor tica Hid an cur Ph Af Nu ho aft 1 res ma Th me for 6-r vea the 31 inf ne V D

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atiute ner rsifor concentrated research on specialised topics in all branches of the mathematical sciences, from pure mathematics, applied mathematics and statistics, to theoretical aspects of any discipline.

At any time there are two visitor programmes in progress, each with about twenty scientists in residence. Included within these programmes are periods of particularly intense activity including instructional courses and workshops. Seventy-seven programmes have now been completed, the most recent being Statistical Theory and Methods for Complex, High-Dimensional Data and Combinatorics and Statistical Mechanics. The programmes currently taking place are Mathematics and Physics of Anderson Localization: 50 Years After and The Nature of High Reynolds Number Turbulence. The Institute also holds short follow-up events some years after a programme.

The Institute invites proposals for research programmes in any branch of mathematics or the mathematical sciences. The Scientific Steering Committee usually meets twice each year to consider proposals for programmes (of 4-week, 4-month or 6-month duration) to run two or three years later. Proposals to be considered at these meetings should be submitted by **31 January** or **31 July** respectively. Further information is also available at www. newton.cam.ac.uk/callprop.html.

## VARIATIONAL PROBLEMS IN DIFFERENTIAL GEOMETRY

An LMS and EPSRC sponsored research workshop on Variational Problems in Differential Geometry will be held at the School of Mathematics at the University of Leeds from 30 March to 2 April 2009. It will incorporate a special session in honour of John C. Wood, on the occasion of his 60th birthday, to celebrate his seminal contributions to the theory of harmonic maps and morphisms.

The workshop will bring together researchers working on disparate geometric problems, all of which admit a variational formulation, the aim being to stimulate cooperation and cross-fertilization of ideas. Topics expected to be addressed include:

- Harmonic maps and morphisms
- Minimal and CMC surfaces
- Special Lagrangian geometry
- Hamiltonian variational problems
- Exceptional holonomy

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Kähler metrics of constant scalar curvature

The format of the workshop will provide five one-hour lectures per day, by invited speakers, leaving generous breaks between talks for questions and informal scientific interaction. Speakers include: • Bernd Ammann (Regensburg)

- Claudio Arezzo (Parma)
- Paul Baird (Brest)
- Olivier Biquard (Paris 6)
- Christoph Böhm (Münster)
- Francis Burstall (Bath)
- Josef Dorfmeister (TU München)
- Akito Futaki (Tokyo Inst. of Technology)
- Mark Haskins (Imperial)
- Frédéric Hélein (Paris 7)
- Nicolaos Kapouleas (Brown)
- Mario Micallef (Warwick)
- Frank Pacard (Paris 12)
- Franz Pedit (University of Massachusets)
- Simon Salamon (Politecnico di Torino)
- Lorenz Schwachhöfer (TU Dortmund)
- Richard Wentworth (Johns Hopkins and University of Maryland)
- Jon Wolfson (Michigan State)

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Please see the website www.amsta.leeds. ac.uk/pure/geometry/vpdg or contact the organizers Roger Bielawski, Kevin Houston and Martin Speight, via vpdg@maths.leeds. ac.uk. Young researchers are particularly encouraged to attend, and may apply for financial support from the organizers.

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#### NEWSLETTER

## NORTH BRITISH SEMIGROUPS AND APPLICATIONS NETWORK

The North British Semigroups and Applications Network (NBSAN) is a new Scheme 3 network of researchers with interests in semigroup theory and its applications. The first meeting will be held in York on Wednesday 28 January 2009. All are welcome, and attendance by graduate students is especially encouraged. For more details please contact Mark Kambites (Mark.Kambites@manchester.ac. uk) or visit the network website at www.maths.manchester.ac.uk/ ~mkambites/events/nbsan/.

## SOUTH-WEST UK ANALYSIS MEETING

The South-West UK Analysis Meeting will take place on 21 January 2009 at the University of Bath. The meeting is thought of as a start-up initiative on the programme of building a regular forum for mathematical analysts based in the South-West of the UK, which includes Aberystwyth, Bath, Birmingham, Bristol, Cardiff, Oxford, Swansea. Although it is focused on the South-West analysis community, mathematicians from other parts of the UK are very welcome to attend.

The main idea behind the meeting is to bring together analysts working in the above research centres, which have formed during the last year or two but have so far had few chances to establish research links between themselves. The 'day' will start around 10-11 am and finish about 5-6 pm, and will include five talks by distinguished



© Sidney Harris

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analysts from the UK and abroad, lunch and two one-hour coffee/discussion breaks, to provide plenty of opportunity for interactions. The list of confirmed speakers is as follows:

- Marc Briane (INSA, Rennes) Homogenisation and its applications to solid mechanics
- Gianni Dal Maso (SISSA, Trieste) Analysis of nonlinear PDEs, Calculus of variations
- Patrick Gérard (Université Paris-Sud) Harmonic analysis, Semi-classical techniques
- Frederic Klopp (Université Paris 13) Mathematical Physics, Spectral analysis
- Jim Wright (University of Edinburgh) Harmonic analysis, Number theory The January 2009 meeting is supported

by the LMS. Those wishing to attend please email CherednichenkoKD@cardiff.ac.uk.

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NEWSLETTER

### SPARSE MATRICES FOR SCIENTIFIC COMPUTATION

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#### In Honour of John Reid's 70th Birthday

The Numerical Analysis Group at the Rutherford Appleton Laboratory is organising a two-day meeting to bring together leading numerical analysts from the UK and abroad in honour of John Reid's 70th birthday. John is an eminent UK numerical analyst who, over a career spanning five decades, has made many important contributions, particularly in the development of sparse matrix technology. His main contributions include: conjugate gradients as an iterative method, Markowitz' pivoting for sparse matrices, estimating sparse Jacobians, factorizing and updating linear programming bases, steepest-edge simplex algorithm, the multifrontal method for sparse linear systems, using 2 × 2 pivots for sparse symmetric indefinite matrices, and ordering sparse matrices for small wavefront and profile.

Since 1969, John has been a member of the Numerical Analysis Group (www. cse.scitech.ac.uk/nag) that began at the Harwell Laboratory and moved to the Rutherford Appleton Laboratory in 1990. One of the key activities of the Group and one for which it is internationally renowned is the HSL (www.cse.scitech.ac.uk/ nag/hsl/hsl.shtml) mathematical software library (formerly called the Harwell Subroutine Library). Amongst its best-known packages are those for solving sparse linear systems, optimization and sparse eigenvalues. Over the years, John has contributed to all these areas and many of his algorithms and packages are widely used today.

The meeting will be held over two days, from 15 to 16 July 2009 at Abingdon, Oxford. All talks will be by invitation. Speakers will include:

- Andrew Cliffe (University of Nottingham)
- Jack Dongarra (University of Tennessee)

- Iain Duff (Rutherford Appleton Laboratory)
- Al Erisman (Seattle Pacific University)
- Roger Fletcher, FRS (University of Dundee)
- Shaun Forth (Cranfield University)
- Sven Hammarling (NAG)
- Kaj Madsen (Technical University of Denmark)
- Nancy Nichols (University of Reading)
- Beresford Parlett I (University of California)
- Michael Powell, FRS (University of Cambridge)
- John Reid (Rutherford Appleton Laboratory)
- Michael Saunders (Stanford University)
- Jennifer Scott (Rutherford Appleton Laboratory)
- Nick Trefethen, FRS (Oxford University)

On Day 1, the talks will be related to the areas of numerical analysis that John has been involved in over his long career. These will include optimization, sparse direct methods, numerical linear algebra, iterative methods, and automatic differentiation.

Day 2 will concentrate on algorithms and software for large-scale systems. It will include talks by leading experts on the history and importance of mathematical software libraries, and look to the future and to new challenges for such libraries. Particular emphasis will be placed on software for sparse problems that has been developed by the Numerical Analysis Group and is used to solve practical problems from a range of application areas.

A celebratory dinner will be held on the evening of the first day. Further details are available at www.cse.scitech.ac.uk/nag/ or by contacting jennifer.scott@stfc.ac.uk. The meeting is being supported by an LMS Conference grant. M Bl

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# MATHEMATICAL MODELS OF COLLECTIVE DYNAMICS IN BIOLOGY AND EVOLUTION

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An international conference and LMS workshop on *Mathematical Models* of *Collective Dynamics in Biology and Evolution* (MDBE'09) will take place at the University of Leicester from 11 to 13 May 2009 organised by Sergei Petrovskii (Leicester).

The conference will address the challenges that have risen from the recent development in life sciences, especially in cancer modelling and other collective dynamics such as population dynamics, ecology and epidemiology, and in the theory of evolution. The goal of the meeting is to make a synopsis of the most important recent findings in these fields, to reveal the inherent relation between the mathematical techniques most successfully used for problems of different biological origin, to emphasize the generic mathematical tools and the most effective ways of using them to address biological problems, and to identify the problems where groundbreaking developments can be expected in near future through application of recent mathematical advances in neighbouring fields.

The scope of the conference is outlined by (although not necessarily restricted to) the following topics:

- ecology and epidemiology
- interface between ecology and evolution
- pattern formation and morphogenesis
- collective cells dynamics and applications to tumour growth

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. Confirmed plenary speakers are:

- Daniel Grunbaum (Seattle, USA)
- Alan Hastings (Davis, USA)
- John King (Nottingham, UK)
- Anatoly Neishtadt (Loughborough, UK)
- Ezio Venturino (Turin, Italy)

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

To register send a message to 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, please indicate very clearly who is actually going to present the work.

The registration and abstract submission deadline is **1 March**, and the decision of acceptance will be made by 15 March 2009. There will be a small registration fee of £50 to be paid in cash upon arrival. This event is supported by the London Mathematical Society and the University of Leicester.

Members of the Advisory Scientific Committee are: Alexander Gorban (Leicester, UK), Michel Langlais (Bordeaux, France), Philip Maini (Oxford, UK), Horst Malchow (Osnabrück, Germany), Jonathan Sherratt (Edinburgh, UK), Nanako Shigesada (Kyoto, Japan), Vitaly Volpert (Lyon, France).

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#### NEWSLETTER

## **RECORDS OF PROCEEDINGS AT MEETINGS**

#### **ANNUAL GENERAL MEETING**

held on *Friday 21 November 2008* at University College London. About 140 members and visitors were present for all or part of the meeting.

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The meeting began at 3:15 pm, with the President, Professor E.B. DAVIES, FRS in the Chair. Members who had not yet voted were invited to hand their ballot papers to the Scrutineer, Professor A.R. Camina.

The Treasurer, Professor N.M.J. Woodhouse, presented his report on the Society's finances, and the implications of the recent downturn in the financial markets on the Society's investments.

Messrs Kingston Smith were re-appointed as auditors for 2008/09.

Copies of the Annual Report on Activities of the Society were made available and the President invited questions. The President reported on the state of negotiations with the Institute of Mathematics and its Applications on the creation of a new unified mathematical society; the members of both societies would be balloted on Council's recommendation and subsequently formal voting would take place. The President urged all members to consider the proposal carefully and to vote in the ballot.

Six people were elected to Ordinary Membership: C. Buescu, E. Estrada, C.G. Hoffman, J.H. Jordan, Z. Sobol, C.B. Thomas and nine were elected to Associate Membership: A.D. Bailey, J.R. Chapman, M. Fluch, M.O. Iverson, A. Khokhar, D.J. Marcinozyk, R. Mycroft, J.A.A. Norris, T.A. Sutherland. Three members signed the book and were admitted to the Society.

The President, on Council's behalf, presented certificates to the 2008 Society Prizewinners – Pólya Prize: Professor David Preiss; Fröhlich Prize: Professor Nicholas Higham; Senior Berwick Prize: Professor Kevin Buzzard; Whitehead Prizes: Dr Timothy Browning, Dr Tamás Hausel and Dr Martin Hairer (Dr Nina Snaith was unable to attend).

The President announced with regret that the Society's Administrator, Miss Susan Oakes, would be retiring at the end of 2008 and presented her with a certificate on behalf of Council.

Professor Graeme Segal, FRS gave a lecture entitled *Noncommutative geometry and* quantum field theory.

After tea, Professor Camina announced the results of the ballot. The following Officers and Members of the Council were elected. President: E.B. Davies; Vice Presidents: D.G. Larman, F.A. Rogers; Treasurer: N.M.J. Woodhouse; General Secretary: C.M. Goldie; Programme Secretary: S.A. Huggett; Publications Secretary: K.J. Falconer; Education Secretary: C.J. Budd; Members-at-Large of Council for two years: A. Borovik, D.E. Buck, H.G. Dales, U.L. Tillman, A.J. Wilkie, E. Winstanley. Council membership is

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completed by the following who were elected for two-year terms in 2008: J.E. Barrow-Green, S.N. Chandler-Wilde, P.J. Davies, I.G. Gordon, A. Laptev, B.J. Totaro. The following members were elected to the Nominating Committee: P.H. Kropholler, A. Truman.

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Professor Michael Green, FRS gave the 2007 Naylor Lecture entitled Some dualities of string theory and quantum gravity.

After the meeting, a reception was held at De Morgan House, followed by the Annual Dinner, which was held at the Hotel Russell and attended by 94 people.

### LMS MEETINGS

#### 21 November 2008

A London Mathematical Society Meeting took place in the afternoon of Friday 21 November at University College London. It was preceded by a Graduate Student Meeting at King's College London in the morning. Both the main event and the pre-meeting featured topics taken directly from string theory or from pure mathematical subjects with some connection to it.

The Graduate Student Meeting was organised by Andreas Recknagel (King's College London) and attended by around 60 participants. The two main speakers were David Tong (Cambridge) and Neil Lambert (King's College London). Lambert opened the meeting at 9.15 with a talk entitled *From D-branes to M-branes;* he introduced the participants to some general ideas of string theory, then moved on to explain the main constructions behind what is generally referred to as the Bagger–Lambert–Gustavsson theory by string theorists. After the coffee break, there were six 20-minute presentations by PhD students from all over the UK and abroad, working on theoretical physics or on areas in pure mathematics with close relations to physics. The first talk was by Oliver Gray (Augsburg) on A complete



LMS Prizewinners 2008: Tamás Hausel, Timothy Browning, David Preiss, Kevin Buzzard (with daughter Kezia), Martin Hairer and Nicholas Higham; with LMS President Brian Davies (right). Absent: Nina Snaith

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#### NEWSLETTER

classification of the N=2 Virasoro unitary minimal models; he related all possible N=2 minimal models to simple current orbifolds of well-known theories, thereby proving existence of full superconformal field theories behind the previously known modular invariant partition functions. Joel Haddley (Liverpool) gave an introduction to Monodromy groups of isolated singularities, discussing a group-theoretical result of Coxeter on reflection groups from the point of view of singularity theory, using the methods of Arnold and Goryunov. As in Gray's talk, the ADE pattern featured prominently.

The talk on 3-algebras and M2-brane dynamics by Elena Méndez-Escobar (Edinburgh) expanded on constructions behind some of the ideas introduced in Neil Lambert's presentation and showed how the ternary algebras essential for Bagger-Lambert-Gustavsson theory can be constructed from ordinary Lie algebras. After another short coffee break, Prim Plansangkate (Cambridge) talked about the Affine sphere equation, Hitchin systems and Painlevé III, and explained how solutions of that differential equation can be used, upon exploiting ideas from mirror symmetry, to write down explicit metrics on Calabi-Yau manifolds. Jonathan Martin (Nottingham) discussed the Stability and spectrum of non-supersymmetric solutions of M-theory compactified on Kähler-Einstein spaces. Noppadol Mekareeva (Imperial College London) talked on SQCD moduli space and Hilbert series and explained how to count chiral gauge invariant operators in supersymdimensional quantum field theory) encodes information about the 4-dimensional non-Abelian gauge theory in which the vortex tube lives.

When Tong's talk ended at 2.30, most of the participants moved to University College London. The Society Meeting there started at 3.15 with the Annual General Meeting, including the presentation of certificates to the 2008 LMS prizewinners. Then Graeme Segal, FRS (Oxford) spoke on Noncommutative geometry and guantum field theory; he outlined a variety of connections between noncommutative geometry and quantum mechanics, topological field theory, to deformation theory via open string algebras as studied by Kontsevich and Cattaneo/Felder, and also to Floer cohomology and A-infinity algebras. After the tea break, the meeting drew to a close with the 2008 Naylor Lecture, delivered by Michael Green, FRS (Cambridge); in his talk entitled Some dualities of string theory and guantum gravity, the first half was devoted to an introductory overview of string theory, including more recent discoveries concerning branes and dualities, while in the second half Professor Green showed how invariance under duality transformations allows one to predict string corrections to classical Einstein-Hilbert gravity; those corrections are terms in the low-energy effective action of string theory and can be expressed in terms of Eisenstein series, owing to the fact that the relevant duality transformations include the modular group.

> Andreas Recknagel King's College London

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metric gauge theories using Hilbert series. After the lunch break, Janet Edwards from EPSRC gave a 30-minute overview of funding opportunities; then the graduate student meeting came to a close with David Tong's talk on *Quantum vortex strings*. Tong showed that the quantum worldsheet dynamics of vortex strings (computable as correlators in a two-



Bustling crowd at tea break





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## Models, Modules and Abelian Groups

In Memory of A. L. S. Corner Ed. by Rüdiger Göbel / Brendan Goldsmith

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# Groups of Prime Power Order

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#### NEWSLETTER

## **SUSAN OAKES**

Tributes to Susan Oakes and her contributions to the LMS, given by the President, and the former Librarian, Robert Curtis, at the Annual Dinner on 21 November 2008, and Susan's response.

#### **Brian Davies:**

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It is with personal regret that I have to say farewell on behalf of the Society to Susan Oakes, who is retiring from her position in the LMS in a few weeks' time. Susan joined the Society in January 1981, moving from Queen Elizabeth College, London, at the suggestion of David Brannan.

For the majority of her time with the LMS, her office was a single room, often described as a broom cupboard, on the top floor of Burlington House on Piccadilly. The office has also been called a shoe box. In 1998 she moved to De Morgan House, where she has been much more visible, quite near to the entrance. I hope she has felt that her work environment has been considerably more pleasant, with a view of the admittedly small garden of DMH.

Susan has been a central figure in the Society for 28 years and has been intimately involved in its development and the expansion of its activities. She has been to, indeed organized, almost every Society meeting since her arrival, all with exemplary efficiency, and she may well know more British mathematicians than any of us does. She has inspired respect and affection for her calm and friendly manner. She has seen and coped with enormous changes, particularly relating to the move to De Morgan House, and provided the continuity that was so important during that period of transition.

Susan has supported and advised a total of 15 Presidents on every aspect of their duties. Within only a few years of her arrival it penetrated the minds of even the least observant member of the Society that she was always there in the background and that she 'was', in some ways, the Society. She is a model of tact and for that reason we will probably never know the variety of stories that she could tell about the peculiar weaknesses of her various Presidents, so I will have to help her out with a single example, no doubt typical of many.

One of the duties of the President is to sign the minutes of the previous Society meeting in front of the assembled members. On my first attempt to do this I got hopelessly confused, possibly being the first President unable to carry out this simple task. At the next meeting I arrived with some stickers to put in the relevant pages, but Susan had anticipated me. Susan had already inserted the stickers with arrows pointing to the exact place where I was to put my signature. Thank you for doing this, Susan.

At this point I should like to hand over to Robert Curtis, who has agreed to say some words about an important aspect of Susan's work that members might not know as much about as they should.

#### **Robert Curtis:**

I am delighted – and honoured – to have the opportunity to say a few words about Susan's contribution to the Archive of the LMS. I am also acutely aware that, although I feel I have got to know Susan quite well in the last decade, there are people present who go back with her much further than I do. I do hope they will bear with me.

When Susan first came to work for the LMS in Burlington House the conditions were, as has been described, somewhat spartan. The 'Archive' she inherited was kept in a cupboard in her shared office together with some boxes at UCL. She ferreted through this material and discovered the *Tucker Collection* of mainly 19C photographs, recognised its importance and set about filling the gap between it and the various modern portraits the Society held. Robert Tucker, I might add, was General Secretary to the LMS from 1867 to 1902, and is thus one of the very few people who can compete with Susan for length of service. Without the continuity and knowledge supplied by this handful  $( \bullet )$ 

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ntilful of dedicated, long-serving folk the Society would not exist in its present vibrant and highlyrespected form. The result of Susan's efforts is the splendid collection which we now accurately refer to as the *Tucker–Oakes Collection*.

When I became Librarian in 2002 it was part of my remit, as instructed by the Officers, to produce some publications based on archive material. We soon learned that Susan, together with Alan Pears, long-time obituarist to the LMS, had already put a great deal of work into a book of past presidents which was to contain a photograph and short biography of each of them. It was clear to the Library Committee (June Barrow-Green, now Librarian, who will be with us shortly, Nick Bingham and I) that this was by far the most promising publication for us to concentrate on and we encouraged Susan and Alan to gird their loins and complete the job. Adrian Rice, a historian of Mathematics who now works in the US and who has become an expert on the history of the London Mathematical Society, wrote an introduction and the result is Susan's delightful book (more fully Oakes, Pears and Rice – all I note of the vegetable kingdom) of which I'm sure each of you has several copies and which you doubtless send as Christmas presents to your mathematical friends around the world.

As you see, the cover is decorated with the signatures of all the past presidents featured in the book. Susan realised that we had a complete

collection as every president had signed the Council Minutes Book. She and Alan scanned them into the computer one wet day in 2005. Members will be aware that said signatures now decorate the glass partitions of the renovated basement to De Morgan House, creating a fitting link to the proud past of the Society. I might add that it was always our intention that the book should be reprinted in 2015 to mark the sesquicentenary of the Society, updated to include all presidents in the first 150 years.

As we are all aware, Susan's contribution to the Society as a whole has been immense over many years – indeed, it is difficult to imagine the LMS without her – and her contribution to the preservation of the history of the Society through the archive will be of permanent value. I am delighted to say that the President has authorised me to announce that as a mark of our appreciation of her work generally for the Society and in particular on the Archive, Council has agreed to name the Archive Room after her.

#### Brian Davies:

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Susan, we will all treasure our own personal memories of your contributions. I should like to conclude by presenting you with some flowers from the Society to thank you for your work for us and to wish you well for a long and happy retirement.

#### Susan Oakes:

Thank you Rob for you kind words. Some of the rooms at the LMS are dedicated to great mathematicians such as Hardy, Verblunsky and Mary Cartwright. I am overwhelmed by Council's recognition of my time at the LMS by dedicating a room in De Morgan House to me. Given I am not a mathematician this makes it a double honour.

I have been very fortunate to have been

involved with the LMS for 28 years. It has been a great privilege to have been part of the mathematical world. It has always been my pleasure to serve the mathematical community and especially the LMS members.

After twenty-eight years I felt it was time for a change, and to begin a new direction to my life. I will greatly miss you all including the staff at De Morgan House.



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### REVIEW

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Lewis Carroll in Numberland by Robin Wilson, Allen Lane, 2008, 256 pp, hardback £16.99, ISBN 0713997576.

Kelvin: Life, Labours and Legacy edited by Raymond Flood, Mark McCartney and Andrew Whitaker, Oxford University Press, 2008, 352 pp, hardback £55.00, ISBN 0199231257.

"Begin at the beginning," the King said, very gravely, "and go on till you come to the end: then stop."

This is the rather apt quote at the beginning of the first of these two books about nineteenth-century mathematicians, either of which would make an ideal late Christmas gift. Robin Wilson's book is a charming account of the mathematics and writings of Charles Dodgson. Although not an ardent Alice fan I found the background of Dodgson's life fascinating and this, coupled with the relevant excerpts from his writings and copies of the original illustrations, enabled me to appreciate the mind behind Alice. Indeed reading Robin's book has prompted me to re-read Carroll in a new light.

The introduction contains eight mathematical snippets from three of Dodgson's books: *Alice, The Hunting of the Snark* and *Sylvie and Bruno Concluded.* References are included

to gravity, map-making, and the construction of Fortunatus's Purse amongst others.

The rest of the book is divided into eight fits, reminiscent of the *Hunting of the Snark*, followed by a conclusion. Each chapter, brimming with examples of Dodgson's writings from letters and other unpublished works, reveals more about this man as a mathematician. We follow him from a child, through school and university studies to a somewhat reluctant lecturer.

The chapter entitled 'Successes and Failures' contains a number of the

photographs that he took, both of his family and the Liddell children. These definitely come under successes as the quality of composition is quite remarkable. It is no wonder that Robin points out that if Dodgson hadn't been known for Alice he would have been known for his photographs even before his mathematics.

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Although a popular book, it also contains a serious account of Dodgson's mathematics. However this is recounted in such a way as to make it palatable for all. In fact, such is the array of mathematical topics that Dodgson worked on that there is bound to be something of interest for everyone even if not all the subtleties are grasped. Undergraduates might be particularly interested in Dodgson's method for calculating determinants, Wimbledon lovers his method for determining order of play in tennis tournaments and would-be spies his matrix cipher; there is also general information about his ideas for revising the electoral voting system, details of his ingenious methods of improving his memory and paradoxes and puzzles galore.

Robin has brilliantly captured Dodgson's sense of humour through the excerpts that he quotes and the stories he retells. This is particularly apparent in his letters to his family and to the children and students to whom he writes and also in his dealings with his Oxford





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colleagues. There are also numerous references to Dodgson the teacher and copious examples of the problems he sets his students and the undergraduate lecture notes he writes. Indeed I have already used one of his problems with my first-year undergraduates and plan to use many more.

All in all this is a very charming and enjoyable book that anyone would be delighted to receive.

Kelvin: Life, Labour and Legacy is a rather different book but equally enjoyable. It contains contributions from sixteen authors each presenting a different part of the life and work of William Thomson (Lord Kelvin). Rather than mentioning each chapter individually, here is a brief outline.

The book begins with an introductory biography by Mark McCartney who gives us wonderful insights into the young Thomson's life and his relationship with his family. This chapter and several others are peppered with excerpts from letters to and from Thomson. Raymond Flood is particularly skilled in using these to give a delightful account of Thomson's dealings with Tait over the publication of the *Treatise on Natural Philosophy* as is Alastair Wood in his account of the friendship that developed with Stokes.

Several chapters are devoted to Kelvin's physical and mathematical discoveries within the areas of electromagnetism, thermodynamics, engineering, statistics and navigation and also included are fascinating accounts of Kelvin's many and varied worldwide collaborations.

In the final chapter, 'Kelvin – the Legacy', Andrew Whitaker compares the view of Kelvin at the beginning of the twentieth century with that at the end and gives a moving account as to why it is that Kelvin has been, but should not be, held in comparatively low regard.

This is a beautiful book that would grace any mathematician's or physicist's bookshelves.

Noël-Ann Bradshaw University of Greenwich (Noël-Ann's car is called Kelvin)

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### **SCITALK NEEDS YOU!**



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SciTalk, founded in 2005 with NESTA start-up funding by Ann Lackie (a.k.a. novelist Ann Lingard) and Peter Normington, is a free resource for fiction-writers that helps them to discover the exciting ideas, images and topics of modern science, mathematics and engineering. Its main aim

is to encourage writers – novelists, poets, playwrights – to meet and talk to scientists, and to visit their labs and work-places: in other words to see how, why and where science is carried out, and to discover that scientists are real people not just clichés. In return, scientists discover that collaborating with writers can be challenging and usually fun (and that writers are real people too).

The SciTalk Contributors are all ages, at all stages in their careers from lab technician to FRS, from a wide variety of disciplines, and come from backgrounds ranging from academia to private consultancies and the NHS. The one aspect that unites them is that they are self-selected enthusiasts and keen to work with writers – as a key to preparing a writer-friendly webpage, an applicant will be asked 'Why is your research interesting to writers?'

SciTalk also runs events and competitions, and its work and aims are strongly supported by well-known writers and scientists. Browse www.scitalk.org.uk and consider whether you would like to become a contributor too (click on SciTalk Contributor to submit an application), or contact enquiries@scitalk.org.uk for further help and information.

(Note: Ann Lingard's latest novel *The Embalmer's Book of Recipes* has benefited considerably from SciTalk Contributor Ian Stewart's suggestions as to the maths that one of the main characters might pursue!)

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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).

#### **JANUARY 2009**

5-9 Dense Granular Flows, IMA Conference, INI, Cambridge (370) 7 Global Analysis and Ouantisation Day. Warwick (375) 8-11 Dynamics and Complexity, UK–Japan Winter School, Bath (375) 12 The Maths of Pylons, Art Galleries and Prisons under the Spotlight, Gresham Lecture, London (375) 12-23 Algebraic Lie Theory Instructional Workshop, INI, Cambridge (374) 14 LMS Northern Regional Meeting. Manchester (377) 21 South-West UK Analysis Meeting, Bath (377)28 North British Semigroups and Applications Network Meeting, York (377) 28 Winter Combinatorics Meeting, Open University, Milton Keynes (376) 29 Some Interesting Curves, Gresham Lecture, London (375) **FEBRUARY 2009** 24 Michael Faraday Prize Lecture, J. Barrow,

The Royal Society, London (377) 27 Mary Cartwright Meeting, London (377)

#### **MARCH 2009**

3 How to be a Winner: The Maths of Race Fixing and Money Laundering, Gresham Lecture, London (375)
23-27 UK Graduate Modelling Week, LMS-EPSRC Short Course, Nottingham (377) 23-27 Algebraic Lie Structures with Origins in Physics Workshop, INI, Cambridge (373)
23-27 Quantum Discrete Integrable Systems Workshop, INI, Cambridge (377)
30-2 Apr Variational Problems in Differential Geometry Workshop, Leeds (377)
30-3 Apr Mathematics of Weather and Climate Prediction Meeting, Meteorological Office, Exeter (376)
31-4 Apr LMS Invited Lectures, A. Ionescu,

Edinburgh (377)

#### **APRIL 2009**

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6-9 BMC, Galway
7-9 BAMC, Nottingham (370)
20-22 Atiyah80: Geometry and Physics Workshop, Edinburgh (375)

#### **MAY 2009**

**11-13** Mathematical Models of Collective Dynamics in Biology and Evolution Meeting, Leicester (377)

#### **JUNE 2009**

8-11 British–Nordic Congress of Mathematicians, Oslo (374)
9-15 Algebraic Topology, Group Theory and Representation Theory Conference, Isle of Skye (376)
15-19 Nonlinear PDE and Free Boundary Problems, Warwick
22-26 Representation Theory and Lie Theory Workshop, INI, Cambridge (376)
29-3 July Discrete Systems and Special Functions Workshop, INI, Cambridge (375)

#### **JULY 2009**

5-10 22nd British Combinatorial Conference, St Andrews (375)
13-18 7th ISAAC Congress, London (377)
15-16 Sparse Matrices for Scientific Computation Meeting, Abingdon, Oxford (377)

#### **AUGUST 2009**

1-15 Groups St Andrews 2009, Bath (372)

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## G. HEPPEL LMS member 1883–1899



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George Heppel, MA St John's College, Cambridge Webster Bro<sup>s</sup>, Bayswater, London

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