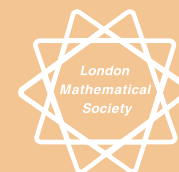


THE LONDON MATHEMATICAL SOCIETY



NEWSLETTER

No. 338 June 2005

Forthcoming Society Meetings

2005

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Friday 17 June

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Meeting
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Monday 5 September

Bristol
South West & South
Wales Regional
Meeting
T. Tao
V. Bergelson

Friday 7 October

London
Algorithms Meeting

COUNCIL DIARY

6 May 2005

Meeting the day after the General Election, Council members, some bleary-eyed from having been up all night, speculated informally about any differences the outcome might make to mathematics and universities!

The major business of Council began with the President, Frances Kirwan, leading a discussion on setting up an Advisory Committee on Mathematics Research and Industry (ACMRI), as recommended by the recent Smith Inquiry into Post-14 Mathematics. A crucial role of ACMRI must be to provide a coherent common voice from the mathematics community to government, able to respond quickly, but at the same time representing the range of bodies across the mathematical sciences. The President outlined one possible approach, which she would discuss with other interested parties.

Council noted the report of the Select Committee on Science and Technology into strategic science provision in English universities.* The Committee recommends a 'hub and spokes' model with at least

one department in each geographical region funded at the highest level for its research in each core science subject, with that department becoming a research hub of the region, supporting and collaborating with other institutions. This model seems far from the Society's view for mathematics, that single honours courses in mathematics need research-active departments and that any university with science, engineering or technology provision requires an identifiable and accessible core of active mathematicians.

At a recent meeting between HEFCE (Higher Education Funding Council for England) and representatives from three CMS societies (LMS, IMA and RSS), the Learning and Teaching Support Network (now Higher Education Academy) and Heads of Mathematics departments, it was clear HEFCE accepted the urgency of getting more mathematics students into universities and is willing to fund a study to develop a strategy to do this. The CMS societies, with HEA and HoDoMS, are planning to establish a steering group to oversee the project, subject to HEFCE's approval.

Publications Secretary Jim Howie introduced a discussion

on the future of LMS publishing policy in the light of the rapid changes taking place across journal publishing. Electronic journals are now common, and some science journals are moving to some form of 'open access' system where the journal is freely available to everyone over the web. Various open access models exist – ranging from 'author pays' models to those like the LMS *Journal of Computational Mathematics*, in which the cost is absorbed by the publisher. Whilst Council wants LMS publications to be as widely accessible as possible, there was complete opposition to any 'author pays' arrangement. Moreover, publishing income must be maintained, being essential for other Society activities such as staging meetings and awarding grants. Thus, developments in journal publishing and marketing both in UK and abroad will be kept under review, so that the Society can respond quickly to any sudden changes. It was noted that, with libraries increasingly buying consortia deals, it is important that impact factors and citation rates remain high. The recent trial of making the main journals freely available for four months

after publication has increased traffic to the journals, and Council felt that this window of free access should be extended to six months.

The range of research meetings supported by the LMS in recent years is impressive. Two items from the Research Meetings Committee were highlighted at Council. New proposals are sought for LMS Durham Symposia, a research series that has been running for over 30 years. With excellent administrative support provided, organisers are able to concentrate on scientific aspects of the Symposia. The LMS-EPSC Short Instructional Courses are designed to familiarise research students with contemporary topics. The most recent annual report on the Instructional Courses has been combined with a bid to EPSRC to renew the contract after the current one finishes in 2006. The bid emphasises the highly positive response of participants, the cost-effectiveness of the scheme and the contribution of the courses in training postgraduates in the context of the International Review of Mathematics.

Kenneth Falconer

LONDON MATHEMATICAL SOCIETY

Friday 10 June 2005

The Mathematical Institute at the University of Oxford announces the following colloquium in conjunction with an Ordinary Meeting of the London Mathematical Society.

4.25 pm Professor Isadore Singer will be admitted as an Honorary Member of the London Mathematical Society

4.30 pm Professor Isadore Singer (MIT)
The Projective Dirac Operator and its Fractional Analytic Index

The meeting and talk will be in Lecture Room 2 (L2).

The colloquium will be followed by an informal reception in the Mathematical Institute Common Room and those attending the ceremony and talk are cordially invited.

The Oxford Mathematics Colloquia are partly supported by Oxford University Press.

For further information contact:

Nims Damney, Mathematical Institute, 24-29 St Giles', Oxford OX1 3LB (nims@maths.ox.ac.uk, tel: 01865 273546) or Susan Oakes, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (oakes@lms.ac.uk, tel: 020 7291 9977).

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SAUNDERS MAC LANE

Saunders Mac Lane, who has died aged 95, was the joint creator (with Samuel Eilenberg) of the subject of category theory. He will also be remembered as the co-author (with Garrett Birkhoff) of *A Survey of Modern Algebra*, which for at least thirty years remained the definitive English-language treatment of abstract algebra.

Mac Lane was born in Taftville, Connecticut on 4 August 1909. His father, who was a Congregationalist minister, died when he was 15, and an uncle made it possible for him to go to Yale where he quickly excelled in mathematics. After a year of postgraduate working Chicago, he moved to Göttingen to study for a PhD in mathematical logic under the supervision of Paul Bernays. On returning to the United States he spent the next five years in fixed-term appointments before becoming an assistant professor at Harvard in 1938.

Although his PhD thesis had been in logic, his early published papers were in algebra (particularly valuation theory), a subject which he had imbibed deeply at Göttingen from Emmy Noether and her students. It was in 1941, the year the *Survey* was published, that the Eilenberg–Mac Lane collaboration began. Eilenberg had arrived in the US from Poland two years earlier, and was then at the University of Michigan. He recognized the similarity of Mac Lane's calculations to ones he was encountering in algebraic topology, and suggested to Mac Lane that they collaborate. The partnership lasted 14 years, and produced 15 major papers which changed the direction of twentieth-century mathematics.

The common calculations led to the development of homological algebra, and in particular to the discovery of Eilenberg–MacLane spaces, which provided the defin-

itive link between the cohomology of groups and that of topological spaces. But Mac Lane and Eilenberg went further. In seeking to provide a sound conceptual framework for the subject, they invented the notions of category, functor and natural transformation. These notions were slow to gain acceptance on account of their seeming lack of content: for a decade or so, category theory was derided by other mathematicians as 'abstract nonsense'. But in time the substantial new advances made possible by the categorical way of thinking about mathematics won it acceptance. Mac Lane remained at the forefront of these advances until well into the 1970s.

In 1947 Mac Lane moved to the University of Chicago, where he spent the rest of his career, becoming Professor Emeritus in 1982. His distinction was recognized by honorary degrees from several universities, and by the award of the National Medal of Science in 1989. His list of PhD students is both long and distinguished, including many mathematicians (such as Irving Kaplansky, Anil Nerode, Robert Solovay and John Thompson) who went on to eminence in fields quite different from his own. He greatly enjoyed the company of younger colleagues, and remained an active participant in international conferences right up to his 90th year.

In addition to the best-selling *Survey of Modern Algebra*, Mac Lane was author or co-author of five books. His accounts of homological algebra (1963) and category theory (1971) both carry the authority of a founder of the subject, and his last book (1992), a textbook on topos theory written jointly with Ieke Moerdijk, was one of the major new developments in mathematics that category theory made possible.

Peter Johnstone
University of Cambridge


springeronline.com

Applied Mathematics in Focus

First volume of a new subseries of the Lecture Notes in Mathematics dedicated to the Mathematical Biosciences



Tutorials in Mathematical Biosciences I
Mathematical Neuroscience
A. Belyuk, MB; Ohio State University, Columbus, OH, USA; G. B. Ermentrout, University of Pittsburgh, PA, USA;
A. Feinman, MB; Ohio State University, Columbus, OH, USA;
D. Terman, Ohio State University, Columbus, OH, USA

2005. IX, 178 p. (Lecture Notes in Mathematics/ Mathematical Biosciences Subseries, Vol. 1860) Softcover
ISBN 3-540-23858-1 ▶ € 49,95; £ 38,50



Stochastic Calculus of Variations in Mathematical Finance
R. Malliarin, Paris, France; A. Thalmaier, Université de Poitiers, France

This extensive and up-to-date text demonstrates the relevance of Malliarin calculus for Mathematical Finance. It starts with an exposition from scratch of this theory. Geeks (price sensitivities) are reinterpreted in terms of Malliarin calculus.

2005. Approx. 128 p. (Springer Finance) Hardcover
ISBN 3-540-45431-3 ▶ € 44,95; £ 34,50



Planning and Scheduling in Manufacturing and Services
M. L. Pinedo, New York University, New York, NY, USA

This book focuses on planning and scheduling applications, which play an important role in most manufacturing and service industries.

2005. XVI, 506 p. With CD-ROM. (Springer Series in Operations Research and Financial Engineering) Hardcover
ISBN 0-387-22198-0 ▶ € 59,95; £ 46,00



Geometric Control of Mechanical Systems
Modeling, Analysis, and Design for Simple Mechanical Control Systems
F. Bullo, University of California at Santa Barbara, CA, USA; A. D. Lewis, Queen's University, Kingston, ON, Canada

The primary emphasis of this book is the modeling, analysis, and control of mechanical systems. The methods and results presented can be applied to a large class of mechanical control systems.

2004. XXXI, 728 p. 102 illus. (Texts in Applied Mathematics, Vol. 49) Hardcover
ISBN 0-387-22195-6 ▶ € 59,95; £ 46,00



Stochastic Numerics for the Boltzmann Equation
S. Rajanow, Universität des Saarlandes, Saarbrücken, Germany; W. Wagner, Wissenschaftszentrum für Angewandte Analysis und Stochastik, Berlin, Germany

The goal of this book is to give a mathematical description of classical direct simulation Monte-Carlo (DSMC) procedures for rarefied gases, using the theory of Markov processes as a unifying framework.

2005. XII, 256 p. (Springer Series in Computational Mathematics, Vol. 37) Hardcover
ISBN 3-540-25268-1 ▶ € 69,95; £ 54,00

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DISCIPLINE HOPPING AWARDS

This Discipline Hopping awards competition is being jointly run by the EPSRC Mathematical Sciences and the Information and Communications Technologies Programmes.

Discipline Hopping Awards provide short-term support to pump prime new collaborations between Mathematical Scientists and Computer Scientists, with the aim of fostering long-term interaction. This scheme allows researchers who have a track record in their own field in the mathematical sciences to apply for funding to investigate and develop ideas, skills and collaborations in the areas of computer science. Alternatively, Computer Science researchers can apply for funding to develop ideas, skills and collaborations in the area of mathematical science.

The closing date for this call is midday on **20 July 2005**. Further details can be found on the EPSRC web site (www.epsrc.ac.uk).

ROLLO DAVIDSON TRUST

The Trustees of the Rollo Davidson Trust award an annual prize for young probabilists. The prize winners for 2005 are Olle Haggstrom (Chalmers University of Technology) for his work across discrete probability and interacting systems and Neil O'Connell (University College, Cork) for his work in networks, large deviations and random matrices.

The Trust was founded in 1975 in memory of Rollo Davidson, an accomplished mathematician of remarkable potential, and Fellow-elect of Churchill College, Cambridge, who died on the Piz Bernina in 1970. Initial funding from the Trust came from the royalties of two collections of papers published in 1973/74 by friends and colleagues of Rollo. The Trust has benefited from the continuing association with the Davidson family. Further details of the Rollo Davidson Trust can be found at www.statslab.cam.ac.uk/Rollo/index.html.

DOUGLAS NORTHCOTT

Professor Douglas Northcott, who was elected a member of the LMS on 17 November 1949, died on 8 April 2005. Born in London on 31 December 1916, he was educated at Christ's Hospital and St John's College, Cambridge. He started work as a research student in analysis under the supervision of G.H. Hardy in 1938, but then war intervened.

Douglas Northcott endured appalling conditions and poor health during the war years, particularly after he became a prisoner of war following the fall of Singapore.

Northcott's original intention, when visiting Princeton during 1946-48, had been to study Banach spaces. However, Emil Artin's kindnesses in explaining fundamental algebraic ideas converted him to algebra. He returned to St John's College as a Research Fellow in 1948, and almost all his post-doctoral work was concerned with commutative algebra and its links with algebraic geometry. He held the Town Trust Chair of Pure Mathematics, and was Head of Department, at Sheffield University for thirty years from 1952 until his retirement. He was awarded the LMS's Junior Berwick Prize in 1953 and served as LMS Vice-President during 1968-69. He was elected to the Royal Society in 1961.

Northcott's name will be known to many LMS members through his seven books. He was delighted when his two Cambridge Tracts, *Ideal theory* (1953) and *Finite free resolutions* (1976), were reprinted in 2004.

Several of Douglas Northcott's many important contributions to research in commutative algebra continue to be mentioned at present-day top-level international conferences. In particular, his joint work with David Rees in 1954 on reductions, integral closures and analytic spreads of ideals is of lasting significance and has strong connections with the modern theory of tight closure.

Rodney Sharp
University of Sheffield

NEWS FROM ACME

The Advisory Committee on Mathematics Education's (ACME) feasibility study on ensuring a high quality 'local offer' in Continuing Professional Development in mathematics, as part of the planned establishment of the National Centre for Excellence in the Teaching of Mathematics (NCETM), has now come to an end. A final report is being completed for submission to DfES as soon as possible, see: www.royalsoc.ac.uk/acme/mathsteaching.htm for further details.

A summary of the key themes raised at the QCA/ACME workshop on functional mathematics, held on 3 March 2005, is now available (see: www.royalsoc.ac.uk/acme/post14.htm). ACME is continuing to represent the views of the mathematics community on the QCA Post14 Mathematics Advisory Group which will meet again in May.

Notes on past meetings of ACME and details of future meetings can be found at: www.royalsoc.ac.uk/acme/whatsHappening.htm.

MATHS EMAIL NEWSLETTER

The EPSRC Mathematical Sciences Programme produces an email newsletter to inform the Mathematical Sciences community of EPSRC activities. The newsletter will enable the Mathematical Sciences Programme to update universities on:

- New calls for proposals of interest to the Mathematical Sciences
- Internal and external policy changes
- Other relevant information that may be of interest

If you would like to receive an email newsletter you should register by sending an email to Maths@epsrc.ac.uk, with 'subscribe' in the subject box.

IMA-LMS FRAMEWORKS STUDY INITIATIVE

How to make your views known

Send your views by email

fsi@ima.org.uk or fsi@lms.ac.uk

Write to the Presidents

- The Institute of Mathematics and its Applications, Catherine Richards House, 16 Nelson Street, Southend-on-Sea SS1 1EF.
- The London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS.

Attend the Open Meetings

- 13 June (Newtownabbey, Co. Antrim) – 1.30 pm, University of Ulster at Jordanstown, as part of the IMA Irish Branch AGM
- 8 July (York) – 6.00 pm, Biology Building, University of York, as part of the LMS Northern Regional Meeting
- 5 September (Bristol) – University of Bristol, as part of the LMS South West and South Wales Regional Meeting (time to be confirmed)
- 20 September (London) – De Morgan House (time to be confirmed)

Further meetings are being arranged in the North-West and Scotland; further details will be posted on the websites when known.

Watch for further news

Updated information on the consultation will be available from the two societies' websites, at www.lms.ac.uk/fsi.html and www.ima.org.uk/institute/fsi.htm.

CAMBRIDGE

Glasgow Mathematical Journal

Glasgow
Mathematical
Journal

Volume 33 Part 1 May 2005

G053033

Editor-in-Chief
Dr A. W. Mason, University of Glasgow

The **Glasgow Mathematical Journal** publishes original research papers in any branch of pure and applied mathematics. An international journal, its policy is to feature a wide variety of research areas, which in recent issues have included ring theory, group theory, functional analysis, combinatorics, differential equations, differential geometry, number theory, algebraic topology, and the application of such methods in applied mathematics.

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VISIT OF PROFESSOR M. PARANJAPE

Professor Manu Paranjape (University of Montreal, Canada) will be visiting the UK between 20 June and 17 July, supported by an LMS Scheme 2 grant. He will give lectures at the Universities of Kent (20 June-9 July), Durham (10-12 July) and Cambridge (13-16 July).

His lectures will concern aspects of solitons in noncommutative field theories. For further details contact Paul Sutcliffe (P.M.Sutcliffe@kent.ac.uk).

COARSE-GRAINING FOR MULTISCALE PHENOMENA

A workshop on Model Reduction and Coarse-Graining Approaches for Multiscale Phenomena will take place at the University of Leicester from 24-26 August. The theme of the workshop is deliberately broad in scope and aims to promote an informal exchange of new ideas and fresh methodological perspectives in the increasingly important area of model reduction and coarse graining for multiscale phenomena. The main thematic areas of the workshop in theoretical and computational approaches are:

- Invariance and model reduction (invariant manifolds for ODE and PDE, perturbation theory and application for model reduction)
- Coarse-graining approaches
- Accuracy estimation and post-processing algorithms

Specific areas of study represented in the workshop include dynamical systems, non-equilibrium statistical mechanics, kinetic theory, hydrodynamics and mechanics of continuous media, (bio)chemical kinetics, particulate systems, nonlinear dynamics, nonlinear control, and nonlinear estimation. The goal of this initiative is to assemble a group of people reflecting the thematically interdisciplinary nature of the workshop, to organise a series of presentations and to encourage dis-

cussions in an informal, casual and 'interactive' format that fosters and facilitates a fruitful dialogue across disciplines.

The generic nature and the power of the pertinent conceptual, analytical and computational frameworks helped eliminate some of the traditional language barriers that, unnecessarily, sometimes impede scientific cooperation and interaction of researchers across disciplines such as physics, chemistry, biology, applied mathematics and engineering. This workshop is open for other participants. Participation by research students at UK universities is supported by the LMS.

For further details contact the organising committee (mr@mcs.le.ac.uk) or visit the website at math.le.ac.uk/EVENTS/ModelReduction2005.

EUCLID AND HIS HERITAGE

A Clay Mathematics Institute Conference on Euclid and his Heritage will be held from 7-8 October in the Martin Wood Lecture Theatre, Department of Physics, Oxford University. The conference is on the occasion of the publication, for the first time, of a complete digital edition of the oldest surviving manuscript of Euclid's Elements. Written around 300 BC, this is *the* founding document of mathematics. The manuscript, dating from the year 888 AD, was copied by Stephen the Clerk in Constantinople, and since 1804 has been in the collection of the Bodleian Library. The digital edition was prepared by the Octavo corporation, which photographed the manuscript at the Bodleian in the autumn of 2004.

The conference will bring together classicists, historians, mathematicians and philosophers to provide a fresh look at Euclid's work, the transmission of Greek science from ancient to modern times, and the influence over twenty three centuries of the Greek revolution in mathematics – the notion of proof, the systematic use of figures, the organization of a complex and interconnected body

of knowledge in the form of an axiomatic system.

The conference is open to all – those in the research and scholarly communities as well as anyone with an interest in the origins and development of scientific thought. For more information visit: www.claymath.org/euclid.

PARADIGM SHIFTS

The 8th International Conference of the Mathematics Education into the 21st Century Project *Reform, Revolution and Paradigm Shifts in Mathematics Education* in cooperation with the Universiti Teknologi Malaysia (UTM) will take place at the Hotel Eden Garden, Johor Bharu, Malaysia from 25 November–1 December 2005.

The Mathematics Education into the 21st Century Project has just completed its seventh successful international conference in Poland, following conferences in Egypt, Jordan, Poland, Australia, Sicily and the Czech Republic. The next conference will be in Johor Bharu, in the very south of Malaysia, and very close to Singapore. Plenary speakers will include Professors Erik de Corte and Paul Ernest, Dr Alan Rogerson and the Director of Higher Education at the Ministry of Education in Malaysia. For further conference details email arogerson@vsg.edu.au.

ALGEBRA, GEOMETRY, ANALYSIS AND MECHANICS

The 6th International Pure Mathematics Conference 2005 (6th IPMC 2005) is a thematic conference on Algebra, Geometry, Analysis and Mechanics. It will be held in Islamabad, Pakistan, from 20-22 August. It will provide a stimulating opportunity to meet experts from various countries in a variety of branches of algebra, analysis, geometry and mechanics.

For further information and to complete the on-line registration form visit the website

at www.pmc.org.pk or write to Professor Dr Qaiser Mushtaq, Convener and Organizer of 6 IPMC 2005, Department of Mathematics, Quaid-i-Azam University, Islamabad.

YORKSHIRE DURHAM GEOMETRY DAY

There will be a Yorkshire Durham Geometry Day on Wednesday 8 June from 11:00 am to 5:15 pm at the Department of Mathematical Sciences, Durham University. Talks will be given by:

- David Calderbank (Edinburgh/York)
- Esther Vergara Diaz (York)
- Richard Hunter (York)
- Alexei Kovalev (Cambridge)
- Juan Nuno-Ballesteros (Valencia)

For further information, email John Bolton (john.bolton@durham.ac.uk) or Wilhelm Klingenberg (wilhelm.klingenberg@durham.ac.uk) or visit the website www.maths.dur.ac.uk/~dma0jb/ydgd.html.



LONDON MATHEMATICAL SOCIETY

NORTHERN REGIONAL MEETING

Room B002, Biology Building, University of York

Friday 8 July 2005

2.00 pm LMS business meeting

2.15 pm Pawel Horodecki (Gdansk)

Quantum communication and entanglement: selected phenomena and open problems

3.15 pm Tea

3.45 pm Charles Bennett (IBM)

Information is quantum

5.00 pm Open discussion on the LMS-IMA Frameworks Study Initiative

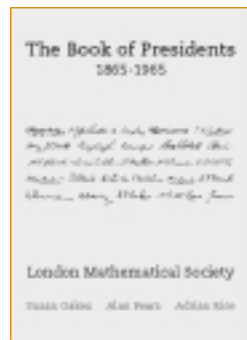
There are limited funds available to contribute in part to the expenses of members of the Society or research students to attend the Society meeting on Friday 8 July. Requests for support, including an estimate of expenses, may be addressed to the Programme Secretary at the Society (web: www.lms.ac.uk; email: grants@lms.ac.uk).

A dinner preceding the meeting will be held on Thursday 7 July. Contact the conference organiser Tony Sudbery (as2@york.ac.uk) if you wish to attend the dinner.

The meeting will be preceded by a workshop on *Quantum Information Theory*, from 6-8 July.

*Macdonald, Hamilton, Herbert, W. Ni
 G. Hardy, E. T. Whittaker, S. Chapman
 G. Hardy, S. A. Waite, G. Hardy
 C. Nicholson, M. H. Newman
 P. H. R. Davenport, H. Heilbronn*

The Book of Presidents 1865-1965



The Book of Presidents 1865 - 1965 will be launched on the 17th June at the Society meeting to be held in the Chemistry Auditorium, Christopher Ingold Building, University College, London.

June Barrow-Green will set the scene with a talk tracing the evolution of the LMS through its presidential addresses. This will be followed by the Naylor Prize Lecture delivered by Richard Jozsa, and a lecture by Roger Penrose, the most recent recipient of the De Morgan Medal. Guests are then invited to a reception in De Morgan House where a photographic exhibition entitled *Faces of Mathematics* will be on display.

The Book itself, which was produced under the auspices of the of the Library Committee, is the combined work of three authors: Susan Oakes, the Society's Administrator, who co-ordinated the whole project and has painstakingly extended the Tucker collection of early photographs to include all presidents up to the present day; Alan Pears, who has served the Society in a number of different roles - most recently as Obituaries Editor, has written short biographies of all the presidents and De Morgan medallists; and Adrian Rice, who lectures on the History of Mathematics and who has become an authority on the LMS, wrote a historical introduction which puts the establishment of the Society in context.

Each president and De Morgan medallist in the first 100 years of the Society's existence has a double page spread devoted to him or her; more recent presidents and De Morgan medallists appear two to a page at this stage, but it is hoped that the Book will be updated on the occasion of the Society's sesquicentenary in 2015 and all 75 presidents and medallists will then receive the full two page treatment.

Copies of the Book will be on sale at the launch at a price of £19 for non-members, £15 for members, and there will be ample opportunity to get your copy signed by the authors.

LONDON MATHEMATICAL SOCIETY

Friday 17 June 2005

Chemistry Auditorium, Christopher Ingold Building,
University College London, 20 Gordon Street, London WC1.

3.00–3.10 Society Meeting

3.10–3.40 June Barrow-Green (Open University)
Launch of the new LMS book
'The Book of Presidents 1865-1965'
'An indulgent freedom': 100 years of
presidential addresses

3.40–4.40 Richard Jozsa (Bristol University)
2004 Naylor Prize Lecture
*An invitation to quantum computation
and recent theoretical developments*

4.40–5.00 Tea

5.00–6.00 Roger Penrose (Oxford University)
Quanglement, spin-networks, and twistor theory

A reception at De Morgan House follows the Book Launch and Society Meeting at which the Society is showcasing the *Faces of Mathematics* exhibition, a display of the photographs and research of twenty of the most successful and influential mathematicians in the UK by Marc Atkins and Nick Gilbert. Professor Frances Kirwan will be welcoming guests to the reception at 6.30 pm.

A dinner will be held at the Il Fornello Restaurant, 150 Southampton Row, London WC1, at 7.30 pm. The cost will be £23 per person, inclusive of wine. Those wishing to attend should inform Susan Oakes, the Administrator at the Society, enclosing a cheque payable to the 'London Mathematical Society' to arrive no later than **Tuesday 14 June**.

There are limited funds available to contribute in part to the expenses of members of the Society or research students to attend the meeting. Requests for support, including an estimate of expenses, may be addressed to the Programme Secretary at the Society (web: www.lms.ac.uk; email: grants@lms.ac.uk).

THEORETICAL ASPECTS OF PATTERN FORMATION

As part of the Satellite Meeting on Theoretical Aspects of Pattern Formation, organised in association with the Isaac Newton Institute programme entitled Pattern Formation in Large Domains, there will be a special day of distinguished lectures at the University of Surrey on Tuesday 20 September, with funding from the Institute of Advanced Studies (University of Surrey).

The one-day seminar is aimed towards describing the state of the art of the subject as well as future directions. The invited speakers will be:

- Günter Ahlers (UC Santa Barbara)
- Dwight Barkley (Warwick)
- Alan Newell (Arizona)
- Arnd Scheel (Minneapolis)
- Eugene Wayne (Boston)

This special day is intended for a wider academic audience. If you wish to attend this one-day seminar on 20 September, but not the entire satellite meeting, then please register at www.maths.surrey.ac.uk/announce/ias-registration.html. For further information contact Ian Melbourne (I.Melbourne@surrey.ac.uk), Alastair Rucklidge (A.M.Rucklidge@leeds.ac.uk) or Bjorn Sandstede (B.Sandstede@surrey.ac.uk).

GEOMETRIC REPRESENTATION AND INVARIANT THEORY

The European Science Foundation is organizing a conference on Geometric Representation and Invariant Theory - Algebraic Quantization and Deformations to be held at Spa, Belgium, from 16-21 September. Invited speakers will include:

- Michel Brion (Grenoble University)
- Claudio Procesi (Rome University)
- Antony Joseph (Weizmann Institute)
- Markus Reineke (Münster University)

- Louis H. Kauffman (UIC Chicago)
- Alexei Rudakov (NTNU Gjøshaugen)
- Bernhard Keller (Paris VII University)
- Sergei Silvestrov (Lund University)
- Lieven Le Bruyn (Antwerp University)
- Thomas Slichtkrull (Aarhus University)
- Peter Littelmann (Wuppertal University)
- Andras Szenes (Budapest University)
- Claudia Menini (Ferrara University)
- Jesper F. Thomsen (Aarhus University)
- Maxim Nazarov (University of York)
- Michel Van den Bergh (Hasselt University)

Recent developments in noncommutative algebra and noncommutative geometry will be discussed at this meeting. Particular areas of interest will be: interaction between representation theory, algebraic geometry, invariant theory, quantum group theory, etc., with application to physics or effective computations.

The emphasis will be on new emerging theories and applications, e.g. the geometry of path algebras and quiver varieties; the study of asymptotics of representations; quantization and deformation theory; geometric interrelations of the standard monomial basis for path theory and relations to crystal constructions; graded character theory in the O -category for semisimple Lie algebras; quantum invariants of maps between manifolds and problems concerning crossed braided categories; quiver-modules and their cohomology in relation to the representation theory of Borchers algebras, etc. The general philosophy is to support the blending at a deeper level of noncommutative algebra with geometric and topological methods.

The conference is open to researchers world-wide, whether from industry or academia. Participation will be limited to about 150. The emphasis will be on discussion about new developments. The conference fee covers full board and lodging as well as the registration fee. A certain number of grants – covering the conference fee and possibly part of the travel expenses – will be available upon request. Deadline for applications is **17 June**.

The scientific programme and on-line application form can be found at: www.esf.org/conferences/pc05197. For further information contact: European Science Foundation, ESF Research Conferences Unit, 1 quai Lezay-Marnésia, BP 90015, 67080 Strasbourg Cedex, France (tel. +33 (0)388 76 71 35; fax +33 (0)388 36 69 87; email: conferences@esf.org).

BRITISH LOGIC COLLOQUIUM

The 2005 meeting of the British Logic Colloquium (BLC 2005) will take place in Bristol, from Thursday 1 – Saturday 3 September. The following have accepted invitations to speak:

- Arnold Beckmann (University of Wales, Swansea)
- Lev Beklemishev (University of Utrecht & Steklov Institute)
- Alessandro Berarducci (Università di Pisa)
- Matthew Foreman (UC Irvine)
- Sy Friedman (Kurt Gödel Institut, Wien)
- Hannes Leitgeb (University of Salzburg)
- Andrew Lewis (University of Leeds)
- Alexander Paseau (University of Cambridge)
- Anand Pillay (University of Leeds)
- Andrea Sorbi (Università degli Studi di Siena)

The meeting is made possible through support by the London Mathematical Society and the British Logic Colloquium. Particular support for postgraduates has also been provided by the LMS. For further information contact the organiser Philip Welch (blc-2005@bristol.ac.uk) or visit the website www.maths.bris.ac.uk/research/pure/blc/blc.html.

Following the meeting, 3-5 September, there will be a Set Theory meeting on Bounded Forcing Axioms and Combinatorial Aspects of Inner Models. For further information visit the website www.maths.bris.ac.uk/research/pure/blc/big.html.

ALGORITHMS AND COMPLEXITY

The first Algorithms and Complexity in Durham Workshop (ACID 2005) will take place from Friday 8 – Sunday 10 July. The workshop is intended to be a forum for researchers working on all aspects of algorithms and complexity. The invited speakers are:

- Michael Fellows (University of Newcastle, Australia) *Fixed-parameter tractability is polynomial-time extremal structure theory*
- Pavel Pudlák (Academy of Sciences of the Czech Republic) *Structures used in lower-bound proofs*
- Carsten Thomassen (Technical University of Denmark) *List colouring*

The organisers invite the submission of short abstracts presenting original research in any area of algorithms and complexity. Submit by **6 June** an abstract up to one page in length using the LaTeX template from the website (www.dur.ac.uk/acid.2005) and emailing it as an attachment to acid.2005@durham.ac.uk. All talks at the workshop (except the invited lectures) will be 30 minutes in length. Possible topics include, but are not limited to:

- Algorithm design and analysis
- Computational complexity
- Randomized algorithms
- Algorithmic graph theory
- Combinatorial algorithms
- Applications of algorithms
- Constraint satisfaction
- Exact and parameterized computation
- Proof complexity
- Approximation algorithms
- Databases and information retrieval
- Quantum computing
- Discrete optimization

The workshop is scheduled to link with the British Combinatorial Conference (Durham, 10-15 July <http://mcs.open.ac.uk/bcc2005>). The same residential accommodation is to be used at both events, so it should be possible

to have the same room throughout. For further information contact: acid.2005@durham.ac.uk or visit the website www.dur.ac.uk/acid.2005. This workshop is supported by an LMS conference grant.

REPRESENTATION THEORY IN DIFFERENTIAL GEOMETRY AND PHYSICS

A workshop and conference on the above topics will be held at the Institut de Mathématiques et de Sciences Physiques (IMSP), Porto-Novo, Benin Republic, West Africa, from 1–17 August. There will be four series of (approximately) six lectures, two in the first week of the meeting and two in the second. (Lectures will begin on 2 August.) Details are as follows:

Week 1

- Professor Shahn Majid (Queen Mary, London) *Noncommutative differential geometry*
- Professor John Rawnsley (Warwick University) *Structure and representations of semisimple Lie algebras*

Week 2

- Dr Anton Cox (City University, London) *The passage from physics to representation theory*
- Dr Iain Gordon (University of Glasgow) *Noncommutative geometry and representation theory*

These lecture courses will be given at a level suitable for postgraduate students and postdocs. There will be in addition a number of one-off lectures at a research level, given by other participants.

Some funds are available to support participation from within the African continent. For further details, including abstracts of the courses and information on how to register and to apply for financial support, see www.imsp-uac.org/Meetings/geonet/geonetSchool.html. In case of difficulty, information

can also be obtained from the organisers: Jean-Pierre Ezin, University of Abomey Calavi, Benin Republic (jpezin1@yahoo.fr); Aderemi Kuku, Ohio State University, Columbus, OH 43210-1174, USA (kuku@math.ohio-state.edu); Ken Brown, University of Glasgow, Glasgow G12 8QW, UK (kab@maths.gla.ac.uk).

The organisers gratefully acknowledge the support of the African Mathematics Millennium Science Initiative (AMMSI), the Abdus Salam International Centre for Theoretical Physics (ICTP) and the London Mathematical Society.

APPLIED INVERSE PROBLEMS

The series of Applied Inverse Problems conferences (Montecatini, Italy, 2001; Lake Arrowhead, USA, 2003) and the current conference at the Royal Agricultural College, Cirencester, 26-30 June, are devoted to various aspects of inverse problems from computational approaches and numerical algorithms, to mathematical modelling, to functional analytic and geometric methods in inverse problems.

The aim of the conference is to communicate some most recent results in the theory and applications of inverse problems which have seen a significant progress in the last 2-3 years. The programme of the conference includes a number of invited talks and specialized minisymposia. There will also be a special session on industrial and financial applications of inverse problems and two poster sessions. The invited speakers are:

- U. Ascher (University of British Columbia) *Artificial time integration and inverse problems*
- J. Berryman (Stanford University) *Time-reversal data processing and its relation to other linear focusing and imaging methods*
- L. Borcea (Rice University) *Theoretical and*

computational aspects of statistically stable imaging in random media

- A. Grunbaum (University of California, Berkeley) *Nonlinear inverse problems for multiterminal networks*
- V. Isakov (University of Wichita) *Increased stability in continuation of wave fields and inverse problems in acoustics*
- J. Kaipio (Kuopio University) *Recent results in the modelling of approximation errors in inverse problems*
- R. Kress (University of Göttingen) *Conformal mapping and electrostatic imaging*
- M. Lassas (University of Helsinki) *Anisotropic inverse problems*
- A. Nachman (University of Toronto) *Progress on analytic inversion methods*
- S. Osher (UCLA) *Using geometry and iterated refinement for inverse problems*
- L. Päivärinta (University of Helsinki) *Calderon's inverse conductivity problem and quasiconformal maps*
- G. Papanicolaou (Stanford University) *Interferometric array imaging*
- T. Poggio (MIT) *Theory of learning*
- L. Reichel (Kent State University) *Tikhonov regularization of large-scale problems*
- O. Scherzer (University of Innsbruck) *Non-convex regularization for inverse problems*
- J. Sylvester (University of Washington) *Locating a time harmonic scatterer or source*
- M. Vogelius (Rutgers University) *Recent results concerning electromagnetic imaging for small inhomogeneities*
- M. Yamamoto (University of Tokyo) *Mathematical analysis and numerical solutions of inverse problems by Carleman estimates*
- V. Vasin (Ural State University) *Regularization and iterative approximation of non-smooth solutions for ill-posed problems*

For further information about the conference, its programme and registration, visit the conference website www.cs.ucl.ac.uk/aip2005. This conference is supported by an LMS conference grant.

Meet the mathematicians at our website.

COMPLEXITIES

Women in Mathematics
Bettye Anne Case and
Anne M. Leggett, editors

This eye-opening book presents the stories of dozens of women who have pursued careers in mathematics, often with inspiring tenacity. The contributors offer their own narratives, recount the experiences of women who came before them, and offer guidance for those who will follow in their career paths.

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EPSRC

COMPUTATIONAL DIFFERENTIAL EQUATIONS



LMS/EPSRC Short Course

University of Manchester, 11–16 September 2005

Organiser: Professor Nicholas J. Higham

Differential equations (DEs) are ubiquitous in science and engineering, being used for all kinds of modelling and prediction. The solutions to most DEs have no convenient explicit form and hence the *numerical solution* of differential equations is a subject of fundamental importance.

This course provides an overview of three important topics in the computational solution of DEs, covering theoretical and numerical aspects and practical computation in MATLAB. The lectures will be supported by laboratory classes. The course lecturers are:

- N.J. Higham (Manchester) *A brief introduction to MATLAB*
- L.N. Trefethen (Oxford) *Spectral methods for ODEs and PDEs*
- D.J. Higham (Strathclyde) *Stochastic differential equations and their numerical simulation*
- D.J. Silvester (Manchester) *Finite element methods for elliptic PDEs*

An opening guest lecture will be given by P.K. Jimack (Leeds).

The course is aimed at mathematics PhD students working in any area that requires computational solution of DEs; it assumes a familiarity with numerical analysis but not a strong background in the subject. Experience in programming is assumed, but it is not necessary for the students to be familiar with MATLAB; sample programs will be provided. For further information see: <http://www.ma.man.ac.uk/~higham/cde05>.

The registration fee is £100. The accommodation costs for all UK-based research students are covered by EPSRC. Participants must pay their own travel costs. EPSRC-supported students can expect that their registration fees and travel costs will be met by their departments from the EPSRC Doctoral Training Account. Postdocs and non-UK students will be required to pay their own subsistence costs.

Application forms may be obtained from Isabelle Robinson, Administrative Officer, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (email: robinson@lms.ac.uk, fax: 020 7291 9978) or an on-line form is available on the LMS website: www.lms.ac.uk/activities/research_meet_com/short_course/27_form.html.

Numbers will be limited and those interested are advised to make an early application. The closing date for applications is **Friday 15 July**. Completed forms should be returned to the Administrative Officer by email, fax or post (details above). All applicants will be contacted by the London Mathematical Society approximately one week after this deadline; we will not be able to give information about individual applications before then. Please do not send any money until we ask.

BOUNDARY INTEGRAL METHODS

The fifth UK conference on Boundary Integral Methods (UKBIM 2005) welcomes mathematicians and engineers who are interested in the theory and application of the boundary integral method. The conference will take place in the Mathematical Sciences Building, University of Liverpool, from 12-13 September. The conference will focus on the latest advances in boundary integral methods (BIM). These include:

- Numerical analysis of BIM
- Generalised boundary element methods (DRBEM)
- New methods for computing Green functions
- Methods for high frequency modelling
- Methods for inverse problems
- Novel applications of BIM
- Advanced algorithms.

All inquiries and correspondence should be sent to Dr Ke Chen, Department of Mathematical Sciences, University of Liverpool, Peach Street, Liverpool L69 7ZL (bim5@liverpool.ac.uk) or visit the website www.liv.ac.uk/bim5. This conference is supported by an LMS conference grant including the support of attendance by UK postgraduate students.

LMS SPITALFIELDS DAY REPORT

Risk Management of Hedge Funds

This Spitalfields Day was held on 10 March 2005 attended by about 30 City members and PhD students as well as participants of the Isaac Newton Institute's programme on *Developments in Quantitative Finance*. The meeting was devoted to risk management of hedge funds and alternative investments, with speakers and attendees from both academia and the finance industry. One goal was to explore the potential role of mathematics in this topical and important field.

Raman Uppal (London Business School) gave the first talk *What to do about excessive volatility*. He explained his objective to determine and analyze the trading strategy that would allow an investor such as a hedge fund to take advantage of the excessive stock price volatility that has been documented in the empirical literature on asset pricing. A general equilibrium model had been constructed where stock prices are excessively volatile by using a device where there are two classes of agents. The first one is overconfident about the value of the signal. When analysing the trading strategy of the rational investor who is not overconfident, it is shown that the trading strategy of a rational investor consists of three components: a static (i.e., Markowitz) component based only on current expected stock returns and risk; a component that hedges the investor against future revisions in the market's expected dividend growth; and a component that hedges against future disagreement in revisions of expected dividend growth.

Anthony Ledford (Man Investments) gave an overview of the key features of a systematic trading model that aims to capitalize on a particular type of pricing inefficiency in order to generate returns whilst at the same time controlling for risk in his talk entitled *Risk modelling and monitoring within a systematic CTA*. The treatment deals with: modelling temporal dependence in both mean and variance (volatility); trading rule selection; and the effect of trading costs.

Constant Beckers (Barclays Global Investors) explained that academic research has proven that systematic risk factors are present in hedge funds in his talk *A multi-factor approach to hedge fund risk modelling*. He went on to say that the identification of these factors has been hampered by a lack of reliable and high frequency return data, a lack of transparency of the underlying investment strategy and the widespread presence of derivative based (sub)-strategies that are

harder to capture. Some issues are: the skewness of monthly returns provides no guide at all to the skewness over longer time periods, and the possible need to adjust for serial correlation (if so, adjust what, and how?).

The next talk was on *Pricing extreme market event risk: theory and evidence from traded options and trend-following hedge funds* given by William Fung (London Business School). Trend-following is like holding a lookback straddle. The model gives good out-of-sample predictions, but does badly in sustained bull markets. Implied volatility is decomposed into expected volatility and a premium. Option risk premium is high in bad S&P periods: this has biased the comparison between the options strategy and the trend following one.

The final talk *An economist's view of risk management of hedge funds* given by Stewart Hodges (Warwick Business School) wrapped up the day and prepared for the subsequent discussion of mathematical questions raised by hedge funds in terms of general equilibrium modelling, selection of data and their statistical treatment.

Philippe Artzner

BOOK REVIEW

The Oxford Murders, Guillermo Martínez (trans. by Sonia Soto), Abacus, 2005, £9.99, pp 208, ISBN 0-349-11721-7

A young Argentinean mathematician arrives in Oxford with a year's scholarship and finds himself involved in a series of murders in which the murderer leaves a sequence of mathematical clues. The story reaches its climax on the day Andrew Wiles announces his proof of Fermat's Last Theorem in Cambridge (which lecture our narrator declines the opportunity to attend, preferring to spend the time with his girlfriend).

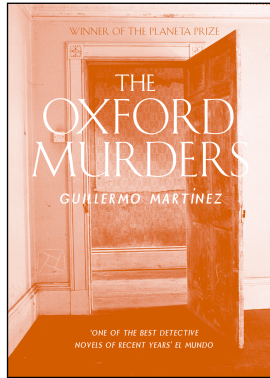
This short novel will appeal to mathematicians in several ways. There is the pleasure of an insider's view of mathematicians (the

author himself is a mathematician); the deft interweaving of the suspense over Wiles's proof into the fiction; the digressions into Gödel's Theorem and other pieces of mathematics; the Oxford locations, including the Mathematical Institute, which will be familiar to many; the puzzle of the continuation of the sequence as each new murder adds an additional term; and the traditional detective story with its clues, red herrings and eventual denouement. The plot, involving both moral and mathematical dilemmas, has a pleasing symmetry. The characters are interesting if somewhat underdeveloped (but after all, this is a detective story). The translation seems to me to be excellent: the maths comes out right, which isn't always the case in translations of novels!

The plot challenges the reader to determine the next member of a sequence of geometrical figures. In various ways the book reflects on the non-uniqueness of possible continuations of a sequence – a point which advocates of multiple-choice 'intelligence' testing should note!

While mathematicians will enjoy this novel, it doesn't require that the reader have a mathematical background: indeed a lay reader would gather something of the fascination of Gödel's work, so this might be a suitable gift for mathematicians to offer friends in order to communicate painlessly something of the feel of the subject. Light reading certainly, but not trivial.

Tony Mann
Greenwich University



LONDON MATHEMATICAL SOCIETY

POPULAR LECTURES 2005

Royal Institution, London – Friday 15 July
Manchester University – Wednesday 28 September

Dr Joan Lasenby

The Mathematics of Shrek

'How does mathematics, coupled with immense computational power, produce the stunning visual effects in movies like Shrek and Toy Story?'



Dr Alan Slomson

What Computers Cannot Do

'Computers can solve many mathematical problems. But, no matter how powerful they become, mathematics tells us there are limits to their problem-solving ability.'

LONDON (Royal Institution, 21 Albemarle Street) Commences at 7.00 pm, refreshments at 8.00 pm, ends at 9.30 pm. Admission is free, with ticket. Apply by **8 July** to Lee-Anne Taylor, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (email: taylor@lms.ac.uk). A stamped addressed envelope would be appreciated.

MANCHESTER (Ruthersford Theatre, Schuster Building, Brunswick Street) Commences at 6.30 pm, refreshments at 7.30 pm, ends at 9.00 pm. Admission is free. Enquiries to Catherine Fox, Department of Mathematics, University of Manchester, Oxford Road, Manchester M13 9PL (tel: 0161 306 4013, email: catherine.fox@manchester.ac.uk).

ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES

RELAXATION DYNAMICS OF MACROSCOPIC SYSTEMS

9 – 13 January 2006

Supported by the European Commission, Sixth Framework Programme – Marie Curie Conferences and Training Courses - MSCF-CT-2004-516558

in association with the Newton Institute programme
Principles of the Dynamics of Non-Equilibrium Systems (9 January–30 June 2006)

Organisers: Silvio Franz (ICTP, Trieste) and Jorge Kurchan (PMMH-ESPCI).

Theme of conference: The conference will focus on hot theoretical topics of complex out-of-equilibrium dynamics: glasses, powders and disordered systems, ageing and coarsening, anomalous heat transfer, reactions of large molecules. The approaches range from rigorous mathematical results to numerical experiments.

Invited speakers: G. Ben Arous, L. Berthier, G. Biroli, J.-P. Bouchaud, A. Bovier, T. Coolen, L. Cugliandolo, D. Dean, M. Evans, S. Franz, J. P. Garrahan, C. Godrèche, F. Guerra, M. Henkel, J. Kurchan, A. Lefèvre, R. Livi, E. Marinari, A. Montanari, M. Moore, F. Ritort, S. Ruffo, P. Sollich, R. Stinchcombe, C. Toninelli, F. Toninelli.

Location and cost: The conference will take place at the Newton Institute and accommodation for participants will be provided in single study bedrooms with shared bathroom at Wolfson Court. The conference package, costing £485, includes accommodation, breakfast and dinner from dinner on Sunday 8 January to breakfast on Saturday 14 January, and lunch and refreshments during the days that lectures take place. Substantial financial support is available for EU research students and post doctoral researchers with fewer than ten years research experience. Participants who wish to attend but do not require the Conference Package will be charged a registration fee of £40. Self-supporting participants are very welcome to apply.

Poster session: There will be a poster session during the conference. If you wish to be considered to present a poster please indicate your request on the application form.

Further information and application forms are available from the web at: www.newton.cam.ac.uk/programmes/PDS/pdsw01.html. Completed application forms should be sent to Tracey Andrew, Programme & Conference Secretary, Isaac Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH or via email (t.andrew@newton.cam.ac.uk).

Closing date for the receipt of applications is **31 August 2005**.

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/meetings/calendar.html).

JUNE 2005

- 8 Yorkshire Durham Geometry Day, Durham University (338)
- 8-11 Operator Theory & Complex Analysis Advanced Course, Seville, Spain (334)
- 8-15 Fejér-Riesz Conference, Eger, Hungary (335)
- 10 LMS Meeting, Oxford (338)
- 16-17 Boundary Elements Workshop, Brunel University (337)
- 17 LMS Meeting, London (338)
- 21-25 Pure & Applied Algebraic Topology Conference, Isle of Skye (337)
- 26-30 Applied Inverse Problems Conference, Cirencester (338)
- 27-1 Jul Algebraic K- and L-Theory of Infinite Groups Meeting, ICMS, Edinburgh (335)

JULY 2005

- 4 Scalar Mixing in Fluid Flows & Mappings Meeting Exeter University (335)
- 4-8 Problems & Perspectives Symposium, Cadi Ayad Université, Marrakech (335)
- 4-8 Pure Model Theory Workshop, East Anglia University (336)
- 4-8 Coagulation-Fragmentation Process ICMS Workshop, Edinburgh (336)
- 4-9 Nonlinear Wave Phenomena LMS/EPSC Short Course, Reading University (337)
- 7-9 International Colloquium, Monst-Hainaut University, Belgium,
- 8 LMS Northern Regional Meeting, York (338)
- 8-10 Algorithms & Complexity Workshop, Durham University (338)

- 10-14 Mathematical Modelling and Applications Conference, City University, London (321)
- 10-15 British Combinatorial Conference, Durham University (329)
- 10-16 Algebraic Topology LMS/EPSC Short Course, University of Wales, Swansea (337)
- 11-15 Inverse Problems in Engineering Conference, Cambridge University (320)
- 11-15 Model Theory, Algebraic & Analytic Geometry Euro Conference, INI, Cambridge (332)
- 11-22 Equidistribution in Number Theory NATO ASI Summer School, Montréal, Canada (334)
- 15 LMS Popular Lectures, Royal Institution, London (338)
- 17-14 Aug Atlantic Association for Research in the Mathematical Sciences Summer School, Canada (333)
- 18-20 Albert Einstein Century International Conference, Paris, France (332)
- 22-28 International Mathematics Competition for University Students, American University, Bulgaria (334)
- 22-1 Aug Geometry, Conformal Field Theory and String Theory Durham Symposium, Durham University (333)
- 25-29 Computational Techniques in Spectral Theory & Related Topics Gregynog Workshop, Gregynog Hall, Powys (320)
- 30-6 Aug Groups St Andrews 2005 Conference, St Andrews University (332)

AUGUST 2005

- 1-5 Pattern Formation Training Course, INI, Cambridge (335)
- 1-17 Representation Theory in Differential Geometry & Physics Workshop, Benin Republic, West Africa (338)
- 2-12 Operator Theory and Spectral Analysis Durham Symposium, Durham University (333)
- 5-11 Mathematical Logic Conference, Budapest, Hungary (335)

PHILIP HALL
DE MORGAN MEDALLIST
1965



Professor Hall received the De Morgan Medal on 18 November 1965. Extract from the President's address: 'Philip Hall is universally acclaimed as one of the leading group theorists of our time. In his very first paper on algebra he proved that the classical Sylow theorems extend in finite soluble groups to a new

class of subgroups that now bear his name. Later he developed a whole theory of finite soluble groups based on this earlier discovery. In between there appeared his monumental paper *A contribution to the theory of groups of prime power order*, one of the most indispensable sources of modern group theory.'