THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 294

June 2001

FORTHCOMING SOCIETY MEETINGS

Friday 22 June - London Hardy Lecture - P. Diaconis Friday 6 July - Manchester Northern Regional Meeting Wednesday 12 September - Bristol South West and South Wales Regional Meeting Friday 23 November - London Annual General Meeting

HARDY FELLOW TIMETABLE

In June, the Hardy Fellow, Professor Persi Diaconis of Stanford University, will give the following lectures. Further details can be obtained from the local host.

Date	Venue	Host	Lecture
Friday	Oxford	Professor J.M. Ball	An Introduction to
8 June		(ball@maths.ox.ac.uk)	Random Matrix Theory
Tuesday Dublin		Professor D. Simms	What do we know about
12 June		(simms@maths.tcd.ie)	the Metropolis Algorithm?
Friday London		London Mathematical	G.H. Hardy and Probability???
22 June		Society (lms@lms.ac.uk)	[Hardy Lecture]
Wednesday	QMW,	Professor R.A. Bailey	An Introduction to
27 June	London	(r.a.bailey@qmw.ac.uk)	Random Matrix Theory
Between	Nottingham	Professor D.B. Applebaum	A Bayesian Peek into
2-5 July		(dba@maths.ntu.ac.uk)	Elementary Probability

JOHN FAUVEL

John G. Fauvel, who was elected a member of the London Mathematical Society on 16 February 1990, died on 12 May 2001, aged 53.

JOHN HAWKES

Professor John Hawkes, who was elected a member of the London Mathematical Society on 16 January 1969, died on 11 April 2001, aged 57:

NOEL BAKER

Professor I.N. Baker, who was elected a member of the London Mathematical Society on 17 December 1959, died on 20 May 2001, aged 68. Professor Baker served the London Mathematical Society as an Editor of the LMS *Journal* (1989-93).

CONFERENCE IN HONOUR OF WALTER HAYMAN

There will be a conference supported by the LMS in honour of the 75th birthday of Walter Hayman at Imperial College, London on 14-16 June 2001. The organisers for the conference are M.W. Liebeck (Imperial), S.K. Donaldson (Imperial) and T.J. Lyons (Oxford). The theme is Function Theory and the invited speakers are: N. Makarov (Caltech), C. Pommerenke (Berlin), A. Eremenko (Purdue), D. Hamilton (Maryland), P. Jones (Yale), W. Werner (Orsay), L. Saloffe-Coste (Cornell), J. Langley (Nottingham), R. Hall (York), T.B. Sheil-Small (York), V. Markovic (Warwick), N. Trefethen (Oxford), A.F. Beardon (Cambridge) and P.J. Rippon (Open). For further information contact Martin Liebeck, Imperial College, London SW7 2BZ (e-mail: m.liebeck@ic.ac.uk) or alterthe natively look on website (www.ma.ic.ac.uk).

GEOFFREY WALKER

Professor Arthur Geoffrey Walker, FRS, FRSE, who was elected a member of the London Mathematical Society on 14 December 1932, died on 31 March 2001, aged 91. Professor Walker served the London Mathematical Society as its President, 1963-65, Vice-President, 1965-67, and as a member of its Council from 1946-50, 1963-67. He was awarded the Junior Berwick Prize in 1947.

GERARD FRIEDLANDER

Dr F.G. Friedlander, FRS, who was elected a member of the London Mathematical Society on 19 June 1947, died on 20 May 2001, aged 83.

NEW DEVELOPMENTS IN K-THEORY

A special K-theory day in honour of Dan Quillen's 60th birthday will be held on Friday 22 and Saturday 23 June in Oxford. The speakers are:

- Andrei Suslin Algebraic K-theory and motivic cohomology
- Lars Hesselholt Topological Hochschild homology and the de Rham-Witt complex
- Graeme Segal K-theory, strings and Dbranes
- Joachim Cuntz k-homology and cyclic homology
- Alain Connes Noncommutative manifolds and Chern character in cyclic homology

A reception and conference dinner, at a cost of £20, will be held on the Friday night at Merton College. En-suite accommodation for the Thursday and Friday night is available at Merton College. The conference is partially supported by the LMS, in particular funds for graduate students are available. For registration contact Ulrike Tillmann (tillmann@maths. ox.ac.uk) by 8 June. Updates on the above information may be found on the web (http://www.maths.ox.ac.uk/notices/eve nts/).

FRIDAY 22 JUNE 2001

P. Diaconis (Stanford)

will give the 2001 Hardy Lecture at 5.00 pm on G.H. Hardy and probability???

The meeting will be held at the Clore Management Centre, Birkbeck College, 25-27 Torrington Square, London WC1

Tea will be served at 4.30 pm

Abstract

Despite a true antipathy to the subject Hardy contributed deeply to modern probability. His work with Ramanujan begat probabilistic number theory. He proved precursors to the law of the iterated logarithm; work on divergent series has a direct probabilistic flavour, and Hardy spaces and BMO are a mainstay of financial mathematics. I shall give a review of his accomplishments and prejudices.

A dinner will be held at Poons Restaurant, 50 Woburn Place, Russell Square, London WC1 at 7.15 pm. The cost will be £23.00 per person, inclusive of wine, and a reception at De Morgan House beforehand. Those wishing to attend should inform Miss Susan M. Oakes, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS, enclosing a cheque payable to 'The London Mathematical Society' to arrive no later than Monday 18 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 may be addressed to the Meetings & Membership Secretary, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (e-mail: grants@lms.ac.uk). Requests should include an estimate of expenses and a very brief *curiculum vitae*; research students should include brief letters of endorsement from their supervisors.

FELLOWS OF THE ROYAL SOCIETY

Congratulations to Frances Kirwan (Oxford), Ian Stewart (Warwick) and Alex Wilkie (Oxford) on their recent election as Fellows of the Royal Society. All three are members of the Society.

ADAMS PRIZEWINNER 2001

The University of Cambridge has announced the winner of one of its most prestigious prizes. The Adams Prize, named after the mathematician John Couch Adams, is awarded each year by the Faculty of Mathematics and St John's College to a young, UK-based researcher doing first class international research in the Mathematical Sciences.

This year's topic was Quantum Information and the winner is Dr Sandu Popescu, who holds a joint appointment as a member of Hewlett-Packard's Basic Research Institute in the Mathematical Sciences (BRIMS) and as a professor of Physics at the University of Bristol. His research in quantum physics has revolutionised the field and has already resulted in the first experimental demonstration of quantum teleportation, involving a single particle of light. The prize is worth £12,000.

SERVICE OF THANKSGIVING FOR THE LIFE AND WORK OF EMERITUS PROFESSOR ROBERT A RANKIN

The death of Professor Robert A. Rankin was announced in the May *Newsletter*. His family invite you to a Service of Thanksgiving at 10.00 am on Saturday 13 October 2001, at the University of Glasgow Memorial Chapel, followed by an informal buffet in the University Dining Rooms. In order to assist with catering arrangements etc, it would be helpful if you could notify Dr Fenny Smith (fenny@smithzzz.demon.co.uk).

2001 WOLF PRIZE

The 2001 Wolf Prize has been awarded to Vladimir I. Arnold of the Steklov Mathematical Institute, Moscow, and the Université de Paris-Dauphine, and to Saharon Shelah of the Hebrew University of Jerusalem. Arnold is honoured "for his deep and influential work in a multitude of areas of mathematics, including dynamical systems, differential equations, and singularity theory." Shelah is honoured "for his many fundamental contributions to mathematical logic and set theory and their applications within other parts of mathematics." The two share the \$100,000 prize. Vladimir Arnold is an Honorary Member of the Society; he was elected Honorary Member in 1976.

2001 CRAFOORD PRIZE

The Royal Swedish Academy of Sciences will award the 2001 Crafoord Prize in mathematics to Alain Connes of the Institute des Hautes Études Scientifiques and the Collège de France, Paris, for his penetrating work on the theory of operator algebras and for having been a founder of noncommunitive geometry. The 2001 Crafoord Prize will be presented by the King of Sweden on 26 September 2001 at a ceremony at the Royal Academy of Sciences in Stockholm. The prize consists of a gold medal and US\$500,000. Alain Connes is an Honorary Member of the Society; he was elected Honorary Member in 1995.

2001 CRM - FIELDS PRIZE

The Centre de Recherches Mathématiques and the Fields Institute has announced the winner of the CRM -Fields Prize for 2001 as Professor William T. Tutte FRS from the University of Waterloo. Professor Tutte has been a member of the Society for over 50 years.

LMS INVITED LECTURES SERIES

The Society's Invited Lectures series consists of meetings at which a single speaker gives a course of about ten expository lectures, examining some subject in depth, over a five day period (Monday to Friday) during a University vacation. The meetings are residential and open to all interested. It is intended that the texts of the lectures given in the series shall be published. In addition to full expenses, the lecturer is offered a fee of £1250 for giving the course and a further fee of £1500 on delivery of the text in a form suitable for publication. Recent lecturers in the series have been P.F. Baum (1995). F.J. Almgren (1996), J. Alperin (1997), D. Zagier (1998), A. Mielke (1999), B. Dubrovin (2000). The 2001 lectures will be given at the University of Aberdeen by T. Goodwillie.

For the 2002 meeting, proposals are now invited from any member who, in addition to suggesting a topic and lecturer, would be prepared to organize the meeting at the member's own institution or a suitable conference centre. Enquiries about this series should be directed to the Executive Secretary, Dr D.J.H. Garling, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (e-mail: garling@lms.ac.uk, tel: 020 7637 3686, fax: 020 7323 3655). Programme Committee hopes to make a decision on **Friday 22 June 2001**.

VISIT OF PROFESSOR A. AFENDIKOV

Professor Andrei Afendikov of the Keldysh Institute in Moscow is visiting the UK during May and June funded by an LMS Scheme 5 grant. He will visit the Department of Mathematics and Statistics at the University of Surrey, as part of a project on numerical aspects of the stability of solitary waves and fronts. For further information contact Professor Tom Bridges (e-mail: T.Bridges@surrey. ac.uk).

VISIT OF PROFESSOR V.YU. NOVOKSHENOV

Professor Viktor Novokshenov (Institute of Mathematics, Ufa, Russia) will be visiting the University of Leeds from 1 - 31 July, supported by an LMS scheme 5 grant. He will give talks at Leeds (University of Leeds). Birmingham (Aston University) and London (Imperial College). For further information contact Professor Alexander Mikhailov, Applied Mathematics Department, University of Leeds, Leeds LS2 9JT (tel: 0113 233 5176, 233 fax: 0113 5102. e-mail: sashamik@amsta.leeds.ac.uk).

VISIT OF PROFESSOR B. SHORR

Professor B. Shorr from the Central Institute of Aviation Motors (Moscow, Russia) will be visiting the University of Manchester for two weeks in June supported by an LMS Scheme 5 grant. For further information contact Julius Kaplunov, Department of Mathematics, University of Manchester, Oxford Road, Manchester M13 9PL (tel: 0161 275 5901, fax: 0161 275 5819, e-mail: kaplunov @ma.man.ac.uk).

VISIT OF PROFESSOR L. SALOFF-COSTE

Professor Laurent Saloff-Coste (Cornell) is visiting Imperial College, London until 16 June, supported by an LMS Scheme 2 grant. He will give seminars on 1 June at Cambridge (J. Norris), 7 June at UCL (L. Parnovski) and 14 June at Imperial College (A. Grigoryan). For further information contact A. Grigoryan, Department of Mathematics, Imperial College, Huxley Building, 180 Queen's Gate, London SW7 2BZ (e-mail: a.grigo ryan@ic.ac.uk).

VISIT OF DR V. TOLSTYKH

Dr Vladimir Tolstykh (Kemerovo, Russia) is visiting the UK during June supported by an LMS Scheme 5 grant. For further information contact Professor B. Zilber (e-mail: zilber@maths.ox.ac.uk, tel: 01865 273537).

DEPARTMENTAL NEWS

University of Surrey

Ian Melbourne has been appointed to a Chair in Mathematics; he was formerly Professor of Mathematics at the University of Houston. Mark Roberts has been appointed to a Chair in Mathematics; he was formerly a Senior Lecturer in Mathematics at the University of Warwick. Both have taken up their appointments in March 2001.

Philip Aston has been promoted to Reader in Mathematics with effect from 1st April; he was formerly a Senior Lecturer in Mathematics. Stephen Gourley has been promoted to Senior Lecturer in Mathematics with effect from 1st April; he was formerly a Lecturer in Mathematics.



B. Engquist, W. Schmid (Eds.)

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G.M. Phillips

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From Archimedes to Gauss

This book is an interesting collection of interconnected topics in areas of mathematics, ranging over two millennia from the work of Archimedes, who died in the year 212 BC, to the "Werke" of Gauss, who was born in 1777. The book is intended for

those who love mathematics, including undergraduate students of mathematics, more advanced students, and the vast unseen host of amateur mathematicians. It will also be a useful source of material for those who teach mathematics.

2000. XII, 223 pp. (CMS Books in Mathematics. Vol. 6) Hardcover * DM 98,-; £ 34,-; FF 370,-; Lit. 108.230 ISBN 0-387-95022-2

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QUANTIZATION, DEFORMATIONS, AND NEW HOMOLOGICAL AND CATEGORICAL METHODS IN MATHEMATICAL PHYSICS WORKSHOP

Saturday 7 - Friday 13 July 2001, UMIST

Mini lecture courses:

- Professor John Jones (Warwick) Operad theory
- Professor Arkady Vaintrob (Oregon) Homological vector fields and their applications
- Professor Klaas Landsman (Amsterdam) Quantization as a functor

Sessions: Saturday morning, Sunday afternoon, Monday to Thursday morning and afternoon, Friday morning.

Topics include: deformation theory and various aspects of quantization; supermanifolds; even and odd Poisson geometry; application of operads; Lie groupoids and Lie algebroids, Lie bialgebroids and related structures.

Expected speakers include: M. Crainic (Utrecht), J. Donin (Bar-Ilan), J. Jones (Warwick), M. Karasev (Moscow), H. Khudavrdian (Yerevan and Manchester), Y. Kosmann-Schwarzbach (Paris), N.P. Landsman (Amsterdam), Liu Zhang-Ju (Peking), K. Mackenzie (Sheffield), Y. Maeda (Keio), S. Merkulov (Glasgow), I. Moerdijk (Utrecht), J. Rawnsley (Warwick), D. Roytenberg (PennState), A. Vaintrob (Oregon), A. Voronov (Michigan), Ping Xu (PennState).

For further details e-mail: Dr Mike Prest (prest@ma.man.ac.uk) or Dr Theodore Voronov (theodore.voronov@umist.ac.uk). You will then be put on the mailing list and informed of further details when they are available. Some support will be available for postgraduate students.

LMS NORTHERN REGIONAL MEETING

Friday 6 July 2001, UMIST

- 3.15 4.15 Professor Boris Fedosov (Moscow) Deformation quantization: pro and contra
- 4.15 5.00 Tea
- 5.00 6.00 Professor Arkady Vaintrob (Oregon) Homological vector fields
- 6.30 7.00 Reception

7.00 Dinner

The dinner will cost approximately £16 excluding drinks. For further details contact Dr Mike Prest (e-mail: prest@ma.man.ac.uk) or Dr Theodore Voronov (e-mail: theodore.voronov@umist.ac.uk). Alternatively look on the website (http://www.ma.umist.ac.uk/tv/LMS).

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 may be addressed to the Meetings & Membership Secretary, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (e-mail: grants@lms.ac.uk). Requests should include an estimate of expenses and a very brief *curiculum vitae*; research students should include brief letters of endorsement from their supervisors.

The meeting will take place on Friday afternoon and will be followed by a workshop on: **Quantization, Deformations, and New Homological and Categorical Methods in Mathematical Physics Workshop** from Saturday 7 - Friday 13 July 2001.

THE LMS ARCHIVE

Since its foundation in 1865 the Society has accumulated a number of items of historical interest. These items are mainly, but not exclusively, concerned with the history of the Society itself.

Over twenty years ago J.W.S. Cassels (President) and David Singmaster (Meetings and Membership Secretary) took an interest in the Society's archives. As a result of their work, in May 1978, the Council agreed formally to recognise the existence of an LMS Archive. The Council also made some recommendations about a policy for Archive. the maintaining Unfortunately, the resources of the Society at that time consisted of a shared room in Burlington House, a part-time secretary, and a small cupboard, which may explain why the policy was quickly forgotten.

The move to De Morgan House has provided the opportunity to put matters right. In January 2000 the Council authorised the Librarian to commission a report from a qualified archivist, in order to establish the extent of our historical material, and make proposals for its future. This report was delivered in May 2000, and Council agreed to retain the services of the archivist for a further year as an interim measure. Meanwhile, the By-Laws had been amended to allow for the development of an Archives Policy.

After some further work on the practicalities, the meeting of Council on 25 March 2001 formally agreed on an Policy Statement Archives and Guidelines. These are reprinted below. The position of Archivist has been taken up by Janet Foster, who started work in May. For an initial three-month period she will be working in De Morgan House for two days per week, in order to sort out the existing material, some of which will be reclaimed from the Library at UCL. Janet can be contacted by e-mail: archive@lms.ac.uk. More details of the plans for developing the Archive will appear in future Newsletters.

Norman Biggs

Policy Statement

The Council of the London Mathematical Society recognises its responsibility to establish a collection of historical material, to be known as the LMS Archive, and to maintain the Archive on its own premises.

The purposes of the Archive are:

- (a) to provide a permanent historical record of the activities of the London Mathematical Society;
- (b) to provide a secure home for significant material relating to mathematics in the UK that might otherwise be lost or destroyed.

An item will be accepted for either category only if the Society is, or thereby becomes, the legal owner of the item and (where possible) the copyright. Items in category (a) will be retained in perpetuity. Items in category (b) may be transferred to a more appropriate repository at any time, subject to the approval of the Council in every case.

The Society may also agree to store material owned by other organisations. Such material will not form part of the LMS Archive, and the terms of the agreement must be ratified by Council in every case.

Guidelines

Items to be kept at De Morgan House, forming the core archive of the Society.

- 1. Records relating specifically to the Society's routine activities. This includes minute books, accounts, and major items of correspondence.
- 2. Records relating to activities carried out on behalf of the LMS by former presidents and officers.
- 3. A photographic collection.
- 4. A complete set of all the Society's periodicals.

Items that the Society will consider for inclusion in the archive, if offered to it. In the event that an item is not required, the Society will provide advice on an alternative location for it.

- 5. Items of historical interest, having a specific association with the LMS or its luminaries, such as Augustus De Morgan and G.H. Hardy.
- 6. Correspondence and documents of former presidents and officers, not specifically related to the LMS.
- 7. Other items relating to Mathematics in the UK.

Classes of items that the Society already owns, but will not seek to extend for the time being.

- 8. Antiquarian books.
- 9. Books of general mathematical interest, not part of the Library at UC.

CHANGES TO PHOTOCOPYING FACILITIES UCL LIBRARY

Some changes have been made to UCL Library's photocopying service. The salient points affecting LMS members are that the DMS Watson Library photocopiers have been centralised on the ground floor and are now under supervision to maintain service continuity. Also, UCL have moved from disposable to rechargeable copycards, which must be purchased at a cost of £4.50 per user. Finally, the price per b/w copy has been reduced from 6.6p to 5p. A more detailed summary may be found on the web (http://www.ucl.ac.uk/Library/news.ht m#copy).

MEETING IN HONOUR OF PROFESSOR BARRY JOHNSON

Wednesday 27 June 2001

Programme

- 2.30 Dr Michael White (Newcastle) Some of Barry Johnson's mathematical achievements
- 3.15 Professor Jean Esterle (Bordeaux) The history of three major questions in automatic continuity theory
- 4.00 Tea
- 4.30 Professor Gavin Brown (Sydney) Distribution of digits
- 7.00 Banquet

The lectures will be at the University of Newcastle upon Tyne. The meeting forms part of the International Conference on Banach Algebras and Cohomology, 25-28 June 2001, which is supported by the LMS; for details of the conference see the website (http://www.ncl.ac.uk/icbacn/). The banquet will cost £25.00 per head. Accommodation can be provided in a student residence for about £20.00. To register for the banquet or to reserve accommodation please e-mail Dr Z.A. Lykova (icbacn@ncl.ac.uk) as soon as possible.

CAMBR

A Brief Guide to Algebraic Number Theory

Peter Swinnerton-Dyer

A superb account of Algebraic Number Theory, a field which has grown to touch many other areas of pure mathematics. Encompasses everything that graduate students and pure mathematicians interested in the subject are likely to need. Many exercises and an annotated reading list are included.



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TRAVEL GRANTS FOR YOUNG MATHEMATICIANS TO ATTEND ICM-2002

The International Mathematical Union (IMU) will award travel grants to young mathematicians to help them to attend the ICM-2002, Beijing, China, 20-28 August 2002. The grants are intended for young mathematicians from developing countries (not necessarily members of IMU). Mathematicians from Eastern European countries, even those with strict monetary regulations, are not part of this programme, but will also be specially considered directly by the Local Organizing Committee.

The age-limit for the grantees is 35 years on the occasion of the Congress. Applications for a travel grant may be sent directly to the Secretary of the Union. Applications may also be submitted through the National Committees for Mathematics, which in such a case will send all the relevant information about the candidates to the Secretary. All applications should reach the Secretary by 31 January 2002 and be sent to the IMU Phillip Α. Griffiths Secretariat: (Secretary), Institute for Advanced Study, Einstein Drive, Princeton, NJ 08540, USA (tel: (609) 734-8200, fax: (609) 683-7605, e-mail: imu@ias.edu). More information can be found on the website (https://bei jing.icm2002.org.cn/mailman/listinfo/ic m2002).

INDUSTRIAL MATHEMATICS MEETING

There will be a one-day meeting on 'Industrial Mathematics: The Impact of Mathematics on Science and Technology ... and vice versa', at the Royal Society of Edinburgh on 6 September 2001. The symposium will highlight mathematics applied to real industrial problems and will illustrate stimuli to mathematics from technology. The speakers will be: Dr P. Grindrod (Numbercraft), Professor H. Neunzert (Kaiserslautern), Dr J.R. Ockendon FRS (Oxford), Professor P. Raynes FRS (Oxford) and Professor N. Doran (Marconi-Solstis Communications).

The meeting is receiving financial support from the London Mathematical Society and from National Grid, Unilever Research and Sharp. Further information can be obtained from Heather Mantell, The Royal Society of Edinburgh, 22-26 George Street, Edinburgh EH2 2PQ (email: meetings@royalsoced.org.uk).

MICRO-ORGANISMS AND CELLS

A meeting on 'Pattern Formation by Swimming Micro-organisms and Cells' will be held at the University of Leeds from 3 - 5 December 2001. The invited speakers are Professor J.O. Kessler (Arizona), Professor H. Othmer (Minnesota), Dr A. Stevens (MIS, Leipzig), Professor B.D. Sleeman (Leeds).

The topics will include:

- Pattern formation by micro-organisms on gels, e.g. the swarming of bacteria.
- Bioconvection, i.e. pattern formation by suspensions of swimming microorganisms.
- Patchiness in oceanic plankton populations.
- Slime moulds.
- Physiological pattern formation, e.g. angiogenesis and chemotaxis of leukocytes.

This is a Euromech Colloquium and a Satellite Meeting to the Isaac Newton Institute Programme 'From Individual to Collective Behaviour in Biology'. The meeting is supported by grants from the London Mathematical Society and the Isaac Newton Institute. For further information contact Dr Nick Hill, Department of Applied Mathematics, University of Leeds, Leeds LS2 9JT (tel: 0113 233 5125, 233 5102. e-mail: 0113 fax: nahill@leeds.ac.uk) or visit the website (http://www.maths.leeds.ac.uk/Euromec h422).

GEOMETRIC ASPECTS OF GROUP THEORY

LMS/EPSRC Short Course

University of Bath, 3 - 7 September 2001

Organisers: M.R. Bridson, W.J. Harvey and G.C. Smith

Geometric group theory involves the study of discrete groups as geometric objects. It also involves constructing and studying actions of groups on metric and topological spaces in order to elucidate the structure of both the group and the space on which it is acting. An important motivating example is the classical modular group SL(2,Z) and its action on the hyperbolic plane.

The lecturers at this short course will present an introduction to major themes in geometric group theory, illustrating them by a detailed study of several specific types of group - these examples are chosen because geometry has crucially guided their study and because of their broad applicability in key research areas, including topology, algebraic geometry, complex dynamics and quantum physics.

The topics to be presented are representative of a wide range of manifestations of discrete group theory in mathematics. The aim is to make this area, which is of great contemporary interest and activity, accessible to beginning graduate students presupposing only a thorough knowledge of undergraduate material (linear algebra, elementary complex analysis, geometry of surfaces and some topology). By concentrating on key examples with broad applicability, the lecturers aim to provide a clear and convincing account of the influence that this type of geometric insight has on contemporary mathematical research in algebra and topology.

The course is intended to attract not just group theorists but also students from areas such as geometric and algebraic topology, complex analysis, differential geometry and topological dynamics. The lecturers and course titles are:

• Geometric group theory: M.R. Bridson (Oxford University)

• The mapping class group: W.J. Harvey (King's College London)

• The ubiquitous Thompson groups: V. Sergiescu (Inst. Fourier, Grenoble)

Each course comprises six lectures; supplementary worksheets and exercises will be supplied, to be discussed with post-doctoral tutors in afternoon sessions. Suggestions for background reading will be available at www.maths.ox.ac/~brid son/shortcourse.

The registration fee is £60 which for UK-based research students includes the cost of course accommodation and meals. 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 Research Training and Support Grant that is paid to universities with each studentship award.

Application forms may be obtained from: Frances Spoor, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (e-mail: spoor@lms.ac.uk) or from the LMS website (http://www.lms.ac.uk/activities/research meet com/short course/07 app.html).

Numbers will be limited and those interested are advised to make an early application. The closing date for applications will be **22 June 2001**.

LMS SOUTH WEST AND SOUTH WALES REGIONAL MEETING

UNIVERSITY OF BRISTOL SCHOOL OF MATHEMATICS & STATISTICS

12 September 2001

Speakers:

- Peter Sarnak, Department of Mathematics, Princeton University
- Kurt Johansson, Institutionen for matematik, KTH, Stockholm

The meeting will be held at the School of Mathematics, University of Bristol. For further details contact Dr Jens Marklof, School of Mathematics, University of Bristol, University Walk, Bristol BS8 1TW (tel: 0117 928 8247, fax: 0117 928 7999, e-mail: j.marklof@bristol.ac.uk). The meeting will be followed by a workshop on: Zeta Functions, Random Matrices and Quantum Chaos from 13 - 14 September 2001.

ZETA FUNCTIONS, RANDOM MATRICES AND QUANTUM CHAOS WORKSHOP

13 - 14 September 2001, Bristol

Workshop Speakers:

- Brian Conrey, American Institute of Mathematics, Palo Alto
- Kurt Johansson, Institutionen for Matematik, KTH, Stockholm
- Andrew Odlyzko, AT&T Labs (to be confirmed)
- · Leonid Pastur, Centre de Physique Theorique de CNRS, Marseille
- Peter Sarnak, Department of Mathematics, Princeton University
- Nina Snaith, American Institute of Mathematics, Palo Alto
- Andreas Strombergsson, Matematiska institutionen, Uppsala University
- Martin Zirnbauer, Institut für Theoretische Physik, University of Cologne
- · Zeev Rudnick, Mathematics Department, Tel Aviv University

The workshop venue is to be confirmed. For further information contact Dr Jens Marklof, School of Mathematics, University of Bristol, University Walk, Bristol BS8 1TW (tel: 0117 928 8247, fax: 0117 928 7999, e-mail: j.marklof@bristol. ac.uk).

BOOK REVIEW

Newton's Tyranny: The Suppressed Scientific Discoveries of Stephen Gray and John Flamsteed by D.H. Clark and S.P.H. Clark (W.H. Freeman & Company, New York, 2001) 188 pp.

If only the 21st century could be so lucky as to have a tyrant like Newton, after the many evil tyrants the World has so painfully experienced in the 20th century! Indeed, this well written and amusing book is fully consistent with a new trend in the biography of well know scientists, viz., emphasizing their very human weaknesses (which might even be called "dehagiography"). Similar works have appeared already containing weaknesses of Einstein, Heisenberg, Oppenheimer and Feynman, among others. Major controversies arose between Newton and Flamsteed because they had vastly different intellectual dispositions; Flamsteed was a great discoverer of raw data and Newton was a great inventor of grand theories (one dug the ore and the other made gold rings). All their lives, each was only one book away from success, but also only one book away from failure! Much useful information is given on the life and electrical experiments of Stephen Gray (an early precursor to Michael Faraday) and his early run-ins with Newton due to his long friendship with Flamsteed. With such biographies one must also be concerned with intrigues in today's science: Who's next and in what discipline?

> Albert A. Mullin Madison, AL USA



REMOVING BOUNDARIES BCME-5

5-7 July 2001, Keele

BCME-5 is for all people with an interest in mathematics education in the UK. This includes those who teach mathematics in all phases of education, from pre-school to further and higher education as well as professional mathematicians, teacher educators, advisers and inspectors, researchers and users of mathematics in other subject areas or at work. The British Congress of Mathematics Education (BCME) is organised under the auspices of the Joint Mathematical Council of the UK, (JMC). BCME-5 will take place Thursday to Saturday 5-7 July 2001 at Keele University, Staffordshire. The theme for BCME-5 is 'Removing Boundaries'.

As well as plenary talks, discussion groups and interest sessions there will be an exhibition and workshop running during the conference and a special conference dinner followed by live jazz and dancing on Friday evening. Thursday 5 July has been especially planned to be of relevance to teachers of mathematics in higher education.

Thursday's programme includes:

Opening Address:

Crossing Boundaries in the Study of Mathematics Teaching: An Uneven Odyssey of Learning and Unlearning, Hyman Bass and Deborah Ball

Interest Sessions:

- Stroud: Engineering Mathematics and the Personal Tutor, Dexter J. Booth
- A Strategy for Enhancing Learning and Teaching in Mathematics, Statistics and OR in Higher Education, Pam Bishop and Joe Kyle
- The Mathematical Components of Engineering Expertise, Philip Kent and Richard Noss
- Problems of Transition from A-level to Undergraduate Mathematics Degrees, Johnston Anderson
- The Lights Are Going Out All Over the UK, Walter Middleton

Further Details:

Details of the rest of the conference programme, including plenaries, discussion groups, workshop, exhibition and entertainment are available now on the conference website (www.bcme.org.uk). Paper copies of programme details are available on request from BCME-5, c/o ATM, 7 Shaftesbury Street, Derby DE23 8YB (tel: 01332 346599, e-mail: atm_maths@compuserve.com).



Spitalfields Day

Thursday 16 August 2001

Isaac Newton Institute for Mathematical Sciences Seminar Room 1, 20 Clarkson Road, Cambridge

MATHEMATICAL ASPECTS OF WATER WAVES

Organiser: T.J. Bridges (Surrey)

11.30 - 11.45	Coffee & Registration
11.45 - 12.30	Walter Craig (McMaster)
	Resonances in Hamiltonian systems and water waves
12.30 - 14.00	Lunch
14.00 - 14.45	Brenny van Groesen (Twente)
	Construction and (a priori) justification of low-dimensional
	models for water waves
14.45 - 15.30	Gerard Iooss (INLN, Nice)
	A new type of codimension-one bifurcation for infinite
	dimensional reversible vector fields with application to
	water waves
15.30 - 16.00	Tea
16.00 - 16.45	Guido Schneider (Bayreuth)
	The validity of 2D water wave models
16.45 - 17.30	John Toland (Bath)
	Global mathematical aspects of some classical water-wave
	problems
17 20 18 30	Wine Reception at the Newton Institute

These lectures are linked to the Isaac Newton Institute Programme on Surface Water Waves.

Anyone interested is welcome to attend. Lunch will be provided at a nominal charge. For catering purposes, please advise Tracey Andrew at the Isaac Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH (t.andrew@newton.cam.ac.uk) by 6 August 2001 if you intend to come.

There are limited funds available to assist research students to attend. Please apply by 6 August 2001 to Tracey Andrew at the Isaac Newton Institute.

Scientific enquiries may be addressed to Professor Tom Bridges (t.bridges@sur rey.ac.uk).

POPULAR LECTURES 2001

Strathclyde University - Thursday 14th June Leeds University - Friday 22nd June Institute of Education, London University - Tuesday 3rd July

Professor Peter Cameron Codes

'From catching out a liar, to sequencing the human genome, or designing a quantum computer - there's a code that does the job.'





Professor Chris Budd Simulating the world

'How maths helps us to: drive a supersonic racing car, make dinosaurs live again, or leave the solar system, without moving from our desks.'

STRATHCLYDE Commences at 2.00 pm, refreshments at 3.00 pm, ends at 4.30 pm. Admission is free. Enquiries to Professor A. McBride or Dr A. Ramage, Department of Mathematics, Strathclyde University, Livingstone Tower, 26 Richmond Street, Glasgow G1 1XH (tel: 0141 548 3647/3801, e-mails: a.c.mcbride@strath.ac.uk, a.ramage@strath.ac.uk).

LEEDS Commences at 6.30 pm, refreshments at 7.30 pm, ends at 9.00 pm. Admission is free. Enquires to Dr R.B.J.T Allenby, School of Mathematics, University of Leeds, Leeds LS2 9JT (tel: 0113 233 5122, e-mail: pmt6ra@leeds.ac.uk).

LONDON Commences at 7.00 pm, refreshments at 8.00 pm, ends at 9.30 pm. Admission is free, with ticket. Apply by June 29th to Miss L Taylor, London Mathematical Society, 57-58 Russell Square, London WC1B 4HS (e-mail: taylor@lms.ac.uk). A stamped addressed envelope would be appreciated.

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History of Mathematics Series

These titles offer interesting historical perspectives on the people and communities that have profoundly influenced the development of mathematics. Beginning with Volume 4, the History of Mathematics series is co-published with the London Mathematical Society. The LMS is registered with the Charity Commissioners.





Essays in the History of Lie Groups and Algebraic Groups

Armand Borel, Institute for Advanced Study, Princeton, NJ

Lie groups and algebraic groups are important in many major areas of mathematics and mathematical physics. We find them in diverse roles, notably as groups of automorphisms of geometric structures, as symmetries of differential systems, or as basic tools in the theory of automorphic forms. The author looks at their development, highlighting the evolution from the almost purely local theory at the start to the global theory that we know today. Starting from Lie's theory of local analytic transformation groups and early work on Lie algebras, he

follows the process of globalization in its two main frameworks: differential geometry and topology on one hand, algebraic geometry on the other. Chapters II to IV are devoted to the former, Chapters V to VIII, to the latter.

The essays in the first part of the book survey various proofs of the full reducibility of linear representations of $SL_2(C)$, the contributions of H. Weyl to representations and invariant theory for semisimple Lie groups, and conclude with a chapter on E. Cartan's theory of symmetric spaces and Lie groups in the large.

The second part of the book first outlines various contributions to linear algebraic groups in the 19th century, due mainly to E. Study, E. Picard, and above all, L. Maurer. After being abandoned for nearly fifty years, the theory was revived by C. Chevalley and E. Kolchin, and then further developed by many others. This is the focus of Chapter VI. The book concludes with two chapters on the work of Chevalley on Lie groups and Lie algebras and of Kolchin on algebraic groups and the Galois theory of differential fields, which put their contributions to algebraic groups in a broader context.

Professor Borel brings a unique perspective to this study. As an important developer of some of the modern elements of both the differential geometric and the algebraic geometric sides of the theory, he has a particularly deep understanding of the underlying mathematics. His lifelong involvement and his historical research in the subject area give him a special appreciation of the story of its development.

Copublished with the London Mathematical Society. Members of the LMS may order directly from the AMS at the AMS member price. The LMS is registered with the Charity Commissioners.

History of Mathematics, Volume 21; 2001; approximately 184 pages; Hardcover; ISBN 0-8218-0288-7; List \$39; All AMS members \$31; Order code HMATH/21LMS

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L. BERS HONORARY MEMBER 1984

DIARY The diary lists Society meetings and other events publicized 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 in the Society's web site (http://www.lms.ac.uk/meetings/diary.html). Huddersfield University (286) **JUNE 2001 16-26** Groups, Geometry and Combinatorics LMS Durham Symposium, Durham University (291) 1 Edinburgh Mathematical Society Meeting, St Andrews University (285) 16-27 Stochastic Partial Differential Equations Workshop, 2-5 The Heritage of I. Schur's 1901 Dissertation, Gregynog Warwick University (287) Hall, Powys (290) 17-20 AMS-SMF First Joint International Meeting, Ecole 2-10 Topological Fluid Mechanics CIME Summer School, Normale Supérieure, Lyon (292) Cosenza, Italy (293) 19-25 Goldman Sachs International Mathematics 3-7 Geometric Aspects of Group Theory, LMS/EPSRC Short Competition, Prague (293) Course, Bath University (293) 24-31 Nonlinear Evolution Equations and Dynamical 3-8 Mathematical Population Dynamics Conference, Systems EuroConference, Isaac Newton Institute, Marrakech (288) 8-10 Belgian Mathematical Society/Deutsche Mathematiker Cambridge (290) 29-2 Aug Teaching of Mathematical Modelling and Vereinigung joint meeting, Liège University, Belgium (284) Applications (ICTMA 10), Tsinghua University, China (284) 14-16 Conference in Honour of Walter Hayman, Imperial 30 - 9 Aug Special Structures in Differential Geometry LMS College London (294) Durham Symposium, Durham University (291) AUGUST 2001 16-22 Kinetic Theory Conference, Anogia, Crete (293) 19-22 Computational Intelligence: Methods and 5-18 Groups-St Andrews, Oxford University (289) Applications Congress (CIMA 2001) University of Wales, 12-19 Homological Conjectures for Finite-Dimensional Bangor (283) Algebras Summer School, Nordfjordeid, Norway (275) 19-23 Calculus of Functors, T. Goodwillie, LMS Invited 18-24 Convex Geometric Analysis Conference, Anogia, Crete Lectures, Aberdeen University (286) 22 Hardy Lecture, P. Diaconis, LMS Meeting, London (292) 22-23 New Developments in K-theory Conference, Oxford SEPTEMBER 2001 1-6 Number Theory and Arithmetical Geometry EURESCO University (293) Conference, Italy (292) 25-28 Banach Algebras and Cohomology Conference, 3-7 Geometric Aspects of Group Theory, LMS/EPSRC Short Newcastle University (288) 25-29 Variational Problems with Singularities Workshop, Course, Bath University (293) 2-6 Applied Mathematics in our Changing World, Berlin, Isaac Newton Institute, Cambridge (290) 27-29 Galway Colloquium on General Topology, Hull Germany (292) 6 Industrial Mathematics Meeting, Royal Society of University (293) 27 Meeting in Honour of Professor Barry Johnson, Edinburgh (294) 3-14 Discrete System and Integrability EuroWorkshop, INI, University of Newcastle-upon-Tyne (294) Cambridge (292) **JULY 2001** 5-7 Domain Decomposition Methods in Fluid Mechanics 1-6 British Combinatorial Conference, Sussex University (276) LMS Workshop, Greenwich University (292) 2-6 Nonlinear Elliptic Equations and Transition Phenomena 6-8 British Logic Colloquium 2001, Manchester University EuroConference, İsaac Newton Institute, Cambridge (290) 2-6 Singapore International Symposium on Topology and 10-11 Boundary Integral Methods Conference, Brighton Geometry, National University of Singapore (291) 4-6 Uncertainty in Geometric Computations MathFIT 12 LMS South West and South Wales Regional Meeting, Workshop, Sheffield University (287) 5-7 Removing Boundaries, BCME-5, Keele University (294) Bristol University (294) 13-14 Zeta Functions, Random Matrices and Quantum 5-14 Combustion Theory LMS Durham Symposium, Chaos Workshop, Bristol University (294) Durham University (291) 22-23 History of Mathematical Table Making Conference, 6 LMS Northern Regional Meeting, UMIST (294) Kellogg College, Oxford (291) 7-13 Quantization, Deformations, and New Homological 24-28 Vertical Integration in Biology Workshop, Isaac and Categorical Methods in Mathematical Physics Newton Institute, Cambridge (291) Workshop, UMIST (294) DECEMBER 2001 9-13 Stochastic Processes and their Applications Conference, 3-5 Pattern Formation by Swimming Micro-organisms and Cambridge (275) 9-13 Progress in Partial Differential Equations, ICMS Cells meeting, Leeds University (294) **JUNE 2002** Edinburgh (288) 24-28 Analytic Number Theory Workshop, Max Plank 9-13 Algebraic Graph Theory Workshop, ICMS Edinburgh Institute, Bonn (288) (288) APRIL 2002 9-13 Singapore-Warwick Workshop in Geometry and 7-12 Joint BMC/BAMC, Warwick University Topology, National University of Singapore (291) AUGUST 2002 9-15 Symmetry in Nonlinear Mathematical Physics, Kyiv, 5-15 New Directions in Dynamical Systems, Ryukoku and Ukraine (293) Kvoto Universities (293) 9-20 Modern Methods in Scientific Computing and 20-28 ICM2002, Beijing, China (272) Applications Seminar, Université de Montréal, Canada (287) 15-20 Algorithms for Approximation IV Symposium, The Newsletter is published monthly except in August. Items and advertisements for inclusion in the Newsletter should be sent to the Editor, Susan Oakes, by e-mail, fax or post to the LMS office (addresses below), to arrive before the first day of the month prior to publication. The London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS

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