

# THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 298

November 2001

## FORTHCOMING SOCIETY MEETINGS

*Friday 23 November - London*

Annual General Meeting

Professor J.F. Toland FRS, Professor A.S. Fokas (Naylor Lecture)

*Friday 15 February 2002 - London*

Mary Cartwright Lecture

S.K. Donaldson FRS, F.C. Kirwan FRS

*Wednesday 27 February 2002 - Birmingham*

Midlands Regional Meeting

Model Theory and Logic

*Tuesday 11 June 2002 - Liverpool*

Northern Regional Meeting

Algebraic Geometry, Knot Theory and Related Areas

*Friday 21 June 2002 - London*

Professor A.R. Its (Hardy Lecture)

## 2002 LONDON MATHEMATICAL SOCIETY PRIZES

In the year 2002, the Council expects to award the Polya Prize, the Senior Berwick Prize, the Naylor Prize and up to four Whitehead Prizes. It is in the process of appointing a Prizes Committee which will be chaired by the President. The Committee will be announced in the December *Newsletter*.

Members of the Society are invited to submit their views on possible candidates to the President, Professor J.T. Stuart (The President, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS; e-mail: [president@lms.ac.uk](mailto:president@lms.ac.uk)) or to any other member of the Prizes Committee by **14 January 2002**. Nominations should contain explicit reference to the grounds on which the nomination is based, and brief descriptions of the criteria for each Prize are given below. Council reserves the right

not to make an award of any particular Prize in the event that no candidate of sufficient merit is recommended by the Prizes Committee.

**The Polya Prize** is awarded in recognition of outstanding creativity in, imaginative use of, or distinguished contribution to, mathematics within the United Kingdom. It may not be awarded to any person who has previously received the De Morgan Medal.

**The Senior Berwick Prize** is to be awarded to a mathematician who is a member of the Society on 1 January 2002, in respect of a definite piece of mathematical research work actually published by the Society during the period from 1 January 1994 to 31 December 2001; it may not be awarded to any person who has previously received the De Morgan Medal, the Polya Prize, the Senior

Whitehead Prize or the Naylor Prize.

**The Naylor Prize** is awarded to a mathematician who is normally resident in the United Kingdom on 1 January 2002. The grounds for the award will be work in, influence on, and contributions to Applied Mathematics and/or the Applications of Mathematics, and lecturing gifts. No-one who has received the De Morgan Medal, the Polya Prize, the Senior Berwick Prize or the Senior Whitehead Prize will be eligible for this Prize.

**The Whitehead Prizes** are awarded to mathematicians who on 1 January 2002 are normally resident in the United Kingdom or members of the Society mainly educated in the United Kingdom, who are not already Fellows of the Royal Society, and who are under the age of forty years (except that this age restric-

tion may be relaxed when it appears desirable to do so in order to take fair account of broken career patterns). Grounds for the award may include work in and influence on mathematics. This Prize may not be awarded to anyone who has won any of the Society's other Prizes. Members are reminded that the scope of the Whitehead Prizes includes all aspects of mathematics, and Council has emphasised that this includes applied mathematics, mathematical physics and mathematical aspects of computer science.

Details of the regulations and the procedure for awarding the Prizes 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).

John Pym  
Council and General Secretary

### PROFESSOR H.O. HUBER

Professor Heinz O. Huber, who was elected a member of the London Mathematical Society on 20 March 1959, died on 25 December 2000, aged 75.

### PROFESOR E.R. LOVE

Professor Eric R. Love, who was elected a member of the London Mathematical Society on 20 January 1938, died on 7 August 2001, aged 89

### ANNUAL DINNER

The Annual Dinner will be held after the Annual General Meeting on Friday 23 November at 7.30 pm at the Court Restaurant, The British Museum, Great Russell Street, London WC1. The cost is £30.00 per person and members may book places for guests. The booking form, enclosed with the October *Newsletter*, should be returned together with payment to the London Mathematical Society office by **Monday 19 November**.

### Deadlines reminder

1 November	Payment of annual subscription
15 November	Return of ballot papers for Council Elections and Nominating Committee
19 November	Booking for the Annual Dinner
30 November	Applications for a visit by the 2002 Hardy Fellow – Professor A.R. Its
1 December	Submission of application for Royal Society grant to ICM2002-Beijing
11 January	Hardy Fellow 2004 nominations
14 January	Submission of nomination to Prizes Committee

# LONDON MATHEMATICAL SOCIETY

## Annual General Meeting

Friday 23 November 2001 at 3.15 pm

- 3.15 - 3.30 Annual General Meeting
- 3.30 - 4.30 **Professor J.F. Toland, FRS** (Bath)  
*Complex Variables in the Variational  
Theory of Water Waves*
- 4.30 - 5.00 Tea (North Cloisters)
- 5.00 - 6.00 **Professor A.S. Fokas** (Imperial College)  
2000 Naylor Prize Lecture  
*Differential Forms, Spectral Theory and  
Boundary Value Problems*

The meeting will be held in the Darwin Lecture Theatre,  
University College London, Gower Street, London WC1

All interested are very welcome

*Please note early start*

Some funds are available to contribute in part to the expenses of members of the Society or research students who wish to attend the meeting. Requests for support should be addressed to the Meetings and Membership Secretary, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (requests should include an estimate of expenses and a very brief *curriculum vitae*; research students should include brief letters of endorsement from their supervisors).

The meeting will be followed by the Annual Dinner. For further details see the announcement in this *Newsletter*. All enquiries may be addressed to Susan Oakes (tel: 020 7637 3686, e-mail: [lms@lms.ac.uk](mailto:lms@lms.ac.uk)).

## SET THEORY AND ITS NEIGHBOURS AT DE MORGAN HOUSE

For the past three years Mirna Dzamonja and I have been running a series of meetings on set theory and its neighbours at De Morgan House (the next one, 'Measure theory and set theory', will be on Wednesday 21st November, when the speakers will include Marianna Csörnyei (UCL), Michael Hruvsak (Amsterdam), Peter Komjath (Budapest) and Grzegorz Plebanek (Wrocław)) and it seemed a good idea to give a brief account now of how the meetings have turned out.

The first thing to say is that De Morgan House has proven to be a great venue for small meetings such as these. The Hardy Room at DMH, which would probably hold about fifty at a squeeze, is an ideal size for the thirty or so participants we typically have, with extensive white boards and a pair of OHPs, and plenty of tables and desks. There are also excellent facilities for sitting and chatting informally between talk sessions. Even more importantly, in the long run, for creating an agreeable atmosphere in which to discuss and do mathematics, Susan Oakes and the LMS staff are unfailingly cheerful and helpful, reducing the load of the practicalities of running the meetings on the day to almost nothing. We are sure that in the future there will be many other meetings held at De Morgan House. Anyway, on to the mathematical content of the series.

Set theory has traditionally been an underrepresented area in Britain and at the time when we started thinking about running the meetings set theory in Britain was at a particularly low ebb. There was only a small amount of research in set theory going on and there were very few visits to Britain from foreign set theorists. Moreover, the links between set theory and various other areas of mathematics in terms of thematic similarities, common focuses of interest or questions, and similarity of methods have not always been appreciated.

Consequently we started organising the meetings with several aims in mind. One was to provide a forum meeting regularly

which would encourage activity in set theory in Britain, and perhaps be cohesive for the activity already going on, and which we hoped would be able to attract more frequent visitors from abroad. We seem to have been reasonably successful in these aims: we have had a steady stream of visitors, almost all of them, fortunately, given our budget, self-funding, and perhaps we have contributed modestly to stimulating an environment conducive for set theory and to bringing together workers in it and those who already had some looser interests in the subject.

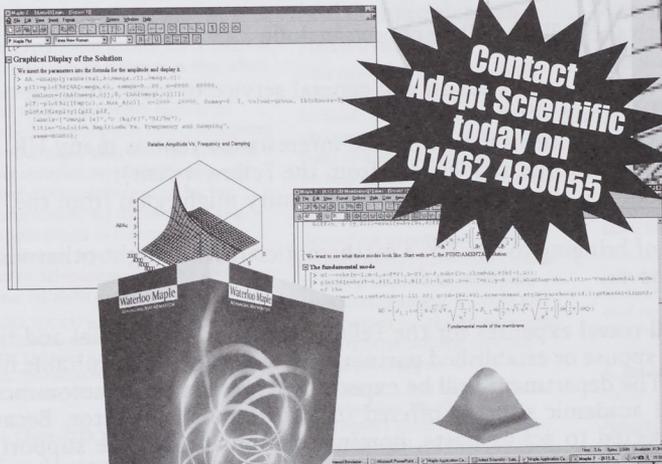
But another at least equally important primary objective was to try to raise the profile of the interconnections between set theory and other areas, and so each of the meetings has had 'set theory and one particular neighbour' as a theme. Just running through the list of neighbours so far: functional analysis, dynamics, finite model theory, ergodic theory, games, topology, combinatorics, model theory, and algebra (principally groups), gives a crude idea of the wide range of topics. The talks have run a gamut from being about specific links between the themes of the meeting, through being suggestive, to concentrating wholly on some aspect of one or other theme, and speakers have ranged from graduate students to the good and the great. This has been a very constructive mixture. Obviously not everyone will be interested in all of the things covered or touched on, and the participants vary partly in response to the particular neighbour which is the subject of the meeting — and gratifyingly we have had specialists in many of the areas remarking to us in the pub after a meeting that they hadn't realised the extent of the interconnections they had heard about during the day — but overall the variety has made for a healthy, 'joined-up' approach to mathematics.

For information visit the website (<http://www.ucl.ac.uk/~ucahcjm/stn.html>). We hope to see you at one of the meetings soon!

Charles Morgan and Mirna Dzamonja

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# LONDON MATHEMATICAL SOCIETY

## HARDY FELLOWSHIP 2004

Persi Diaconis has recently completed his tenure as the first Hardy Fellow. In 2002, the Hardy fellow will be Alexander Its. Nominations are now sought for a Hardy Fellowship to be held in 2004.

The Hardy Fellow will be a distinguished overseas mathematician who will make a significant contribution to the UK mathematical scene, and the word 'distinguished' is not intended to exclude those at an early stage of their careers. The Fellow should visit one (or possibly two) institutions in the UK for an extended period, but during that time should also visit several other places to explain ideas and to make wide mathematical contacts in the UK community. The Council has in mind a stay of about four months with around 8 to 10 lectures being given at a variety of other locations, but it is prepared to be flexible and to consider other suggestions.

The grounds on which the Fellow will be chosen include

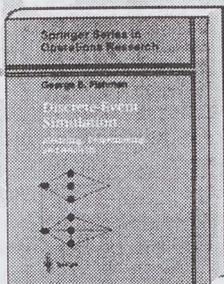
- (i) the nominee's work in, influence on and general service to mathematics;
- (ii) the nominee's lecturing gifts;
- (iii) the breadth of the nominee's mathematical interests (so that as many UK mathematicians as possible may benefit from the Fellow's visit);
- (iv) the overall benefit the UK mathematical community might gain from the nominee's visit;
- (v) the possibility of bringing to the UK a mathematician who might otherwise visit rarely or never.

The LMS will pay all travel expenses for the Fellow, together with initial and final travel expenses for a spouse or established partner, and will also offer a suitable honorarium or stipend. The department will be expected to provide office accommodation and the normal academic support offered to a distinguished visitor. Because departments are expected to act as hosts, nominations must have the support of departments. Normally there should be only one nomination from any department, but Council recognizes that in some institutions Applied Mathematics, Computer Science, Pure Mathematics and Statistics are joined together and in others put asunder; the rule will therefore be interpreted flexibly.

Nominations should be made by letter through the head of department to the Society's Executive Secretary at The London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS. In order to give time for a proper consideration of nominees, proposals should arrive by **11 January 2002**. The nominations will be considered by the 2002 Prizes Committee before being presented to Council. A decision should be known by early summer 2002.

Further information can be obtained from the Council and General Secretary of the Society, Professor J.S. Pym, Department of Pure Mathematics, The University, Sheffield S3 7RH (j.pym@shef.ac.uk) or from the Executive Secretary, Dr D.J.H. Garling (garling@lms.ac.uk).

# The World of Applied Mathematics



G.S. Fishman

## Discrete-Event Simulation

Modeling, Programming, and Analysis

Discrete-event simulation consists of a collection of techniques that when applied to a discrete-event dynamical system, generates sequences called sample paths that characterize its behavior. This concept of modeling complex systems allows a relatively low-cost way of gathering information for decision making. Applications to computer systems, inventory/supply chain management, telecommunications systems, and reliability models are explored.

2001. XIX, 537 pp. 83 figs. (Springer Series in Operations Research) Hardcover **DM 169,90**; £ 62,50; FF 685,-; sFr 146,50; Lit. 200,780; as of Jan. 2002: € 84,95 ISBN 0-387-95160-1

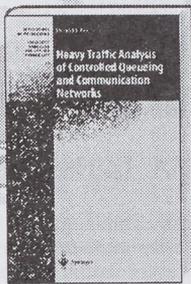
H. Chen, D.D. Yao

## Fundamentals of Queuing Networks

Performance, Asymptotics, and Optimization

Written by leading authors in the field, this book is meant to be used as a reference or supplementary reading by practitioners in operations research, computer systems, communications networks, production planning, and logistics.

2001. XVII, 405 pp. (Applications of Mathematics, Vol. 46) Hardcover **DM 149,90**; £ 55,50; FF 605,-; sFr 129,-; Lit. 177,140; as of Jan. 2002: € 74,95 ISBN 0-387-95166-0

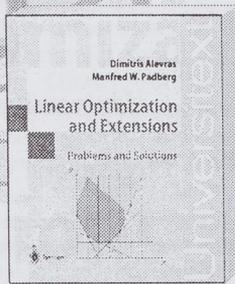


H.J. Kushner

## Heavy Traffic Analysis of Controlled Queueing and Communication Networks

This book provides a thorough development of the powerful methods of heavy traffic analysis and approximations with applications to a wide variety of stochastic (e.g. queueing and communication) networks. The general theory is developed, with possibly state dependent parameters, and specialized to many different cases of practical interest. Control problems in telecommunications and applications to scheduling, admissions control, polling, and elsewhere are treated.

2001. XIX, 513 pp. 50 figs. (Applications of Mathematics, Vol. 47) Hardcover **DM 149,90**; £ 55,50; FF 605,-; sFr 129,-; Lit. 177,140; as of Jan. 2002: € 74,95 ISBN 0-387-95264-0



D. Alevras, M.W. Padberg

## Linear Optimization and Extensions

Problems and Solutions

The authors offer a comprehensive treatment of the exercises and case studies as well as summaries of the chapters of the book "Linear Optimization and Extensions" by Manfred Padberg. It covers the areas of linear programming and the optimization of linear functions over polyhedra in finite dimensional Euclidean vector spaces.

2001. IX, 449 pp. 67 figs. (Universitext) Softcover **DM 73,90**; £ 27,50; FF 298,-; sFr 65,50; Lit. 87,330; as of Jan. 2002: € 36,95 ISBN 3-540-41744-3

A. Doucet, N. de Freitas, N. Gordon (Eds.)

## Sequential Monte Carlo Methods in Practice

2001. XIV, 581 pp. 168 figs. (Statistics for Engineering and Information Science) Hardcover **DM 179,90**; £ 66,50; FF 726,-; sFr 155,-; Lit. 212,600; as of Jan. 2002: € 89,95 ISBN 0-387-95146-6

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# NEW TRENDS IN COMPUTATIONAL DIFFERENTIAL EQUATIONS

LMS/EPSRC Short Course

University of Cambridge, 24 - 28 March 2002

Organisers: C.J. Budd, A. Iserles and N. Nikiforakis

Few subject areas in modern mathematics exhibit such a large gap between available and evolving theory and everyday practice as *computational differential equations*. Our mathematical understanding of discretisation processes and their algorithmic implementation has undergone substantial revolution in the last decade. There are entirely new families of discretisation methods, for example, multiresolution techniques and fast multipole algorithms, but also much-improved rigorous understanding of what numerical methods can do in practice and how well they are capable of modelling differential equations.

The purpose of this short course is to expose UK research students, mainly (but not exclusively) from the applied and computational community, to new trends in the discretisation of differential equations. Our intention is to provide participants with an opportunity to familiarise themselves with new computational approaches and to examine how the latter fit into their own research interests.

The course titles and lecturers are:

- **Adaptivity and geometric integration** : Chris Budd (University of Bath)
- **Multiresolution methods for partial differential equations** : Wolfgang Dahmen (RWTH Aachen)
- **Approximation theory for numerical computation** : Ron DeVore (University of South Carolina)
- **Partial differential equations in image processing, computer vision and computer graphics** : Guillermo Sapiro (University of Minnesota)

The courses will be supplemented by workshops and tutorials. For more information about the courses and lecturers, consult the website: <http://www.damtp.cam.ac.uk/user/na/LMS/>.

The registration fee is £60, which for all 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 (or from the Doctoral Training Account in the case of first-year students).

Application forms may be obtained from Frances Spoor, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS ([spoor@lms.ac.uk](mailto:spoor@lms.ac.uk)) or from the website: [http://www.lms.ac.uk/activities/research\\_meet\\_com/short\\_course/09\\_app.html](http://www.lms.ac.uk/activities/research_meet_com/short_course/09_app.html).

Numbers will be limited and those interested are advised to make an early application. The closing date for applications is **30 November 2001**.

## APPLIED MATHEMATICS IN OUR CHANGING WORLD

The first SIAM-EMS Conference was held in Berlin from 2-6 September 2001. This conference, which was jointly organised by the Society for Industrial and Applied Mathematics (SIAM) and the European Mathematical Society (EMS), was intended to cover a whole range of applications of mathematics in the sciences, in engineering and in society more generally. Several UK people and LMS members attended, including Jonathan Chapman (Oxford), who gave a plenary lecture, Hilary Ockendon (Oxford), who was a leading participant in a 'Round-Table' discussion, and Andrew Stuart (Warwick), who jointly organised a mini-symposium with Christof Schütte (Berlin). There were several other UK participants also. The programme included 10 plenary lectures, some 35 mini-symposia, a host of contributed talks and an extended poster session, together with a 'Round-Table' discussion on 'Applied Mathematics in Europe'.

The diversity of the applications of mathematics, and indeed of the fields of mathematics involved in those applications, was illustrated well by the Plenary Lectures.

Michael Waterman (USC, California) spoke on 'DNA Sequence Assembly using Eulerian Graphs'; he explained the possible confusion between sequencing errors and real mutations, and then presented a discussion in terms of the classical Eulerian path problem. Andrew Majda (Courant Institute, New York) had the subject of the atmospheric and ocean sciences and their interaction, using concepts of Markov Processes and Gaussian Measures as well as those of the Ekman Layer and the Rossby number. Kai Nagel (Switzerland) discussed Transportation Simulations of 'intelligent particles' (us!) with use of queueing theory and graph theory.

The lecture of Tom Hou (Caltech) dealt with the evolution of a singularity in a vortex sheet, using both classical (includ-

ing complex) analysis and computational studies to show how Moore's singularity (which develops in a finite time) has an extension to three dimensions. In another type of fluid mechanics (with an elastic element) Arfio Quarteroni (Pisa and Lausanne) gave a description of models of the cardiovascular system, showing how a hyperbolic set of equations (analogous to those of gas dynamics or shallow-water dynamics) could be relevant for studies of both medical techniques and pathologies. Michael Griebel (Bonn) described the simulation of nanotubes, the carbon-based or boron-nitride-based cylindrical sheets; they are microns in length and nanometres in diameter. His computations were in part based on quantum mechanics with a Brenner potential, and showed well some of the experimentally measured properties, such as tensile strength. Also in the realm of materials, Jonathan Chapman's lecture explained the basis of models of superconducting thin films, focussing on the role of superconducting vortices and using classical asymptotics in a very effective way.

The presentation of Benoit Mandelbrot (Yale) had the novel feature that he was not present. Rather, due to a troublesome back injury his lecture came by a transatlantic television link, a technological triumph for IBM and the Konrad-Zuse Zentrum für Informations Technik Berlin, which hosted the meeting. Mandelbrot spoke on Markets and Finance, with fractals playing a substantial role in what he called a 'wild state of randomness'; this 'roughness' he argued, needed to be faced in the financial markets. Questions to Professor Mandelbrot were also handled effectively over the television link. However the writer and perhaps others did not learn enough to become expert manipulators of the markets.

Pietro Perona (Caltech) had the topic of Representation and Learning for Visual Object Recognition, being concerned

## THE ABEL PRIZE

therefore with the statistics of shape and probabilistic models of position. On the other hand Martin Grötschel (Berlin) spoke of the design of telecommunication networks, with challenges for integer programming. As with some other plenary lectures, graph theory played a part, as did combinatorics and linear programming techniques in this lecture.

Many other areas of mathematics were represented in the mini-symposia, contributed talks and poster sessions.

At the 'Round-Table' discussion both Rolf Jeltsch, President of EMS, and Tom Manteuffel, President of SIAM, spoke of their perceptions of Applied Mathematics, as did others on the panel and other members of the audience. Professor Jeltsch emphasized that the discussion followed a meeting on Applied Mathematics at Berlingen, Switzerland in May 2001, which was attended by representatives of many Mathematical Societies (of the EC and elsewhere in Europe), including the LMS. Professor Manteuffel spoke from the USA standpoint, but mentioned that 38% of SIAM members reside outside the USA. He emphasized the great need and demand for mathematics in modern technology and cited nonlinear problems in aircraft design and in the physiology of blood flow; the latter theme was taken up by others. Overall the importance of topics such as in the Biological and Geophysical Sciences, Materials Science and Information Technology was much emphasized, with the relevance of a welter of mathematical techniques.

The point was made that Applied Mathematicians in their involvement with topics and problems in the Sciences, Engineering and Society, should be aware of developments in purer areas of mathematics so that appropriate utilization can be made. This emphasizes the unity of all mathematicians in their efforts to achieve 'connectivity' with colleagues in other disciplines, a need that is Europe-wide and there in North America also.

J.T. Stuart

Norway has established a fund for an international prize in mathematics, the Abel Prize, to commemorate Niels Henrik Abel, the leading 19th century Norwegian mathematician (1802-1829) who nearly 200 years ago made a lasting impact in the world of science. The Abel Prize will be awarded annually, and is intended to present the field of mathematics with a prize on the highest level. The Abel Prize Fund will be established at the 200th anniversary of Niels Henrik Abel's birth, in 2002. The prize will have an initial capital of NOK 200 million (US\$22 million). The fund will be a state fund, where the annual yield shall cover the prize and a major award event.

The Norwegian Prime Minister, Mr Jens Stoltenberg, announced the establishment of the Abel Prize in a lecture at the University of Oslo. The prize has been prepared by a group at the University's Mathematics Department. The Norwegian Government is working to focus more on mathematics and science than has been the case in recent years. The establishment of the Abel Prize is hoped to have several positive effects:

- increased interest among young people in studying science
- strengthening of the country's research in the field of mathematics
- increased awareness of Norway as a country of knowledge and learning
- positive international awareness

Large parts of the western world are now seeing a lack of interest in science subjects. A prize to commemorate Niels Henrik Abel is intended to underline the importance of mathematics and science. The plans to establish the prize have already seen wide support, with the European Mathematical Society and the International Mathematical Union behind the initiative. The prize will thus have both national and international support.

## Advances in Geometry

NEW

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## Forum Mathematicum

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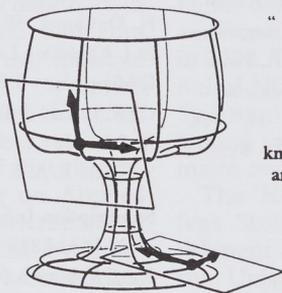


### Geometric Modeling with Splines

Elaine Cohen, Richard F. Riesenfeld, Gershon Elber

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— Tom Lyche  
University of Oslo



## LONDON MATHEMATICAL SOCIETY

### MATHEMATICAL WHO'S WHERE UNITED KINGDOM 2001 EDITION

The Mathematical Who's Where directory United Kingdom 2001 is now available. It contains information about mathematicians and mathematics departments in universities in the UK. Copies are available at a price of just **£6.00** or **US\$12.00** per copy inclusive of postage, from:

**London Mathematical Society**  
**De Morgan House**  
**57-58 Russell Square**  
**London WC1B 4HS**

Please make cheques payable to the 'London Mathematical Society'. Alternatively, contact Lee Anne Taylor (tel: 020 7637 3686, fax: 020 7323 3655, e-mail: [taylor@lms.ac.uk](mailto:taylor@lms.ac.uk)) who can take an order for you.



## CEIC/IMU BUSINESS

The Committee on Electronic Information and Communication (CEIC) of the International Mathematical Union (IMU) has issued two statements which were endorsed by the IMU Executive Committee on 15 May 2001 at its 68th session in Princeton, NJ. The first is a 'Call to All Mathematicians' in support of open access to mathematical literature. The second is an executive summary of a longer statement on mathematical copyright. The two statements are as follows; further details, including the full copyright statement, can be found on the web (<http://www.ceic.math.ca/>).

### Call to All Mathematicians

Open access to the mathematical literature is an important goal. Each of us can contribute to that goal by making available electronically as much of our own work as feasible.

Our recent work is already in computer readable form and should be made available variously in TeX source, dvi, pdf (Adobe Acrobat), or PostScript form. Publications from the pre-TeX era can be scanned and/or digitally photographed. Retyping in TeX is not as unthinkable as first appears. Our action will have greatly enlarged the reservoir of freely available primary mathematical material, particularly helping scientists working without adequate library access.

### Executive Summary of Copyright Statement for Authors of Research Papers in Journals

The number of mathematical papers that are stored or circulated as electronic files is increasing steadily. It is important that copyright agreements should keep in step with this development, and not inhibit mathematical authors or their publishers from making best use of the electronic medium together with more traditional media. While most mathematicians have no desire to learn the subtleties of copyright law, there are some general principles that they should keep in mind when

discussing copyright for research papers with their publishers.

1. A copyright agreement with your publisher is a bargain struck between his interests and yours. You are entitled to look out for your interests. Most journal publishers have a standard copyright form, and may be unwilling to vary it for individual authors. But nothing prevents you from asking, if you see room for improvement. Pressure from authors may lead publishers to change their standard contracts.
2. Three groups of people have an interest in your paper:
  - (a) Yourself and your employer (who may in some countries be automatically the original copyright holder and hence a party to the copyright agreement);
  - (b) The journal publisher;
  - (c) Users of paper who are not parties to the copyright agreement, including readers and libraries.One of the main purposes of your copyright agreement is to control how your publisher or you make the paper available to this third group. Publishers will hardly allow individual authors to dictate agreements with libraries. But if you know that a certain journal publisher makes life hard for libraries, you can take this into account when choosing where to submit your paper.
3. There is no ideal copyright agreement for all situations. But in general your agreement should contain the following features:
  - (a) You allow your publisher to publish the paper, including all required attachments if it is an electronic paper.
  - (b) You give your publisher rights to authorize other people or institutions to copy your paper under reasonable

- conditions, and to abstract and archive your paper.
- (c) Your publisher allows you to make reprints of the paper electronically available in a form that makes it clear where the paper is published.
  - (d) You promise your publisher that you have taken all reasonable steps to ensure that your paper contains nothing that is libellous or infringes copyright.
  - (e) Your publisher will authorize reprinting of your paper in collections and will take all reasonable steps to inform you when he does this.
4. Should you grant full copyright to the publisher? In some jurisdictions it is impossible to transfer full copyright from author to publisher; instead the author gives the publisher an exclusive right to do the things that publishers need to do, and these things need to be spelt out in the agreement. This way of proceeding is possible in all jurisdictions, and it has the merit of being clear and honest about what is allowed or required.

W.A. Hodges

## LMS REGIONAL MEETING IN BRISTOL

The first South West and South Wales Regional Society Meeting was held in the School of Mathematics at the University of Bristol on 12 September 2001. This was one day after the devastating terrorist attacks in New York and Washington. The meeting began with a minute's silence.

Kurt Johansson of the KTH in Stockholm started the mathematical proceedings with an interesting and wide-ranging talk entitled 'From Szegő's Theorem to Random Matrices and More'. He first presented several ways of formulating Szegő's theorem for the asymptotics of Toeplitz determinants, and then described some results concerning the largest-eigenvalue distribution for random hermitian matrices. Finally, these themes were linked to a range of important problems in combinatorics and probability theory, such as determining the length distribution for the longest increasing subsequences of random permutations.

The second talk, on 'Families of Zeta Functions, Applications and

### RECORDS OF PROCEEDINGS AT MEETINGS REGIONAL ORDINARY MEETING

held on *Wednesday 12 September 2001* at the University of Bristol. About 50 members and visitors were present for all or part of the meeting.

The meeting began at 3:00 pm, with Professor J.T. STUART, FRS, in the Chair. A minute's silence was observed in memory of those who had died in the terrorist attacks on the U.S.A. on the previous day. Eight people were elected to Ordinary Membership: J. Adler, C. Christofi, E.V. Flynn, A.E. Henke, A.N.W. Hone, M. Katzman, C. Michels, M. Zohry; and one person was elected to Reciprocity Membership: R. Schimming (Deutsche Math.-Verein.).

The Minutes of the Proceedings at the Society Meeting held in July 2001 was signed as a correct record.

J.P. Keating introduced a lecture given by K. Johansson on 'From Szegő's theorem to random matrices and more'.

After tea four members signed the book and were admitted to the Society.

It was announced that P. Sarnak was unable to travel from the U.S.A. because of the closure of all American airports. His lecture, 'Families of zeta functions, applications and conjectures' was delivered from his notes by B. Conrey.

The President announced that the winner of the poster competition was David Leslie for his entry titled 'Learning ? Evolution'.

A reception and dinner was held in Royal Fort House in the evening.

Conjectures', was due to be delivered by Peter Sarnak of Princeton University. However, as a consequence of the tragic events in New York, he was unable to attend. Instead, Brian Conrey, the Director of the American Institute of Mathematics, Palo Alto, delivered the lecture from Professor Sarnak's faxed notes. The subject concerned a range of important problems in analytic number theory relating to families of  $L$ -functions, and their connection to random matrix theory. It included an explanation of the recent solution of Hilbert's 11th problem, and a discussion of some recent conjectures concerning statistical properties of zeta functions.

There was also a poster session. A prize for the best poster was awarded by Trevor Stuart and Marcus du Sautoy to Mr David Leslie, a PhD student at the University of Bristol. Approximately 50 people attended the meeting, which was followed by a reception and dinner.

The meeting was followed by a two-day LMS Workshop on 'Zeta Functions, Random Matrices and Quantum Chaos', held at the Basic Research Institute in the Mathematical Sciences (BRIMS) in Hewlett-Packard Laboratories, Bristol. About 45 people participated.

J P Keating

### RESEARCH INTO PROBLEMS WITH MEMORY AND AFTER-EFFECT

The Chester-Manchester Cooperative Group on Research into Problems with Memory and After-effect is organising an informal workshop (the third in 2001) from 12 - 17 December, based at the Departments of Mathematics at Chester College and at the University of Manchester. During this period, seminars will be presented by Professor S.M. Verduyn Lunel (Leiden) and by Christopher Baker, Evelyn Buckwar (Berlin & Manchester), Neville Ford and Chris Paul. E-mail (rfde@ma.man.ac.uk) for additional details and further arrangements.

### INTERNATIONAL CONGRESS OF MATHEMATICIANS Beijing 2002

Members are reminded that the next closing date for applications for grants from The Royal Society is **1 December 2001**. 'Grants are made only to applicants who are either presenting their own paper or poster at a meeting or chairing a session.' Details are given on the website (<http://www.royalsoc.ac.uk/funding/>). Participants will have an opportunity to present a paper or a poster: see the October *Newsletter* (page 9).

Any arrangements that the London Mathematical Society may make for support will be announced in the December *Newsletter*.

### BRITISH WOMEN IN MATHEMATICS DAY

The 2002 British Woman in Mathematics Day will be held on Wednesday 9 January at De Morgan House. Talks will begin at 11 am, after half an hour of coffee, and end at 4.30 pm, followed by an excursion to a nearby restaurant for an early supper. As the name suggests, this is an occasion for women active in mathematics to get together, although men are certainly not excluded. Recognising that the proportion of women reading for PhD's in mathematics is considerably lower than first degree performance would indicate, with similar attrition at the PhD/Postdoc interface, the aim is to make the programme accessible and relevant to final year undergraduates and to PhD students. Sessions will include talks by practising women mathematicians in a variety of positions, inside and outside academia, as well as seminars by current PhD students. The organisers hope that all members will particularly encourage women students to attend this meeting. For further information contact Frances Spoor, Secretary, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (tel: 020 7637 3686, fax: 020 7323 3655, e-mail: [spoor@lms.ac.uk](mailto:spoor@lms.ac.uk)).

## WORKSHOP ON TOPOLOGY, OPERADS AND QUANTISATION

A Workshop on Topology, Operads and Quantisation is to be held from 10-14 December 2001 at the Mathematics Institute, University of Warwick as a continuation of the EPSRC Symposium on Geometry and Topology. The Workshop is supported by the EPSRC and LMS (British Mathematicians' Fund) with special provision for UK registered graduate students. The speakers include: D. Arnal, A. Cattaneo, E. Getzler, S. Gutt, J. Jones, R. Léandre, M. Markl, J. Smith, U. Tillman, S. Waldmann and P. Xu. The Workshop takes place at the same time as a Workshop on Geometry

and Symmetry in Continuum Mechanics in the Geometric Mechanics and Symmetry Symposium. Accommodation will be on campus or in local guest houses, and can be reserved. For further information on this and other Mathematics Research Centre programmes contact Peta McAllister, MRC Business Manager, Mathematics Research Centre, University of Warwick, Coventry CV4 7AL (tel: 024 7652 4403, fax: 024 7652 3548, e-mail: [peta@maths.warwick.ac.uk](mailto:peta@maths.warwick.ac.uk)), or visit the website (<http://www/maths.warwick.ac.uk/~jhr/toq2001/>).

## MATHEMATICAL JOURNALS PUBLISHED IN THE UNITED KINGDOM

### Descriptions

These descriptions are provided by the publishers or editors, and the views expressed are not necessarily those of the Society.

The *Bulletin of the London Mathematical Society* publishes important short research articles, with coverage extending across the whole of pure mathematics, together with some more applied areas of analysis, theoretical computing and mathematical physics. It also publishes authoritative survey articles and advanced expositions, often of an extensive nature reviewing all major developments in an important area over many years. Obituary notices are published. The Bulletin has a substantial book review section, including books in applied mathematics and statistics as well as pure mathematics. (<http://uk.cambridge.org/journals/blm>)

*Classical and Quantum Gravity* welcomes original research articles on all branches of gravitational physics and the theory of spacetime. The readership of the journal is broad, comprising gravitational theorists and experimentalists in physics, mathematics and cosmology. The detailed coverage of the journal includes, but is not limited to: all aspects of Classical General Relativity;

Applications of Relativity including relativistic astrophysics; Experimental Gravitation; Cosmology and the Early Universe; all aspects of Quantum Gravity; Supergravity, superstrings and supersymmetry including M-theory; Mathematical Physics and Differential Geometry relevant to Gravitation. (<http://www.iop.org/journals/cqg>)

The *European Journal of Applied Mathematics* aims to publish papers in all areas of applied mathematics with especial emphasis on the following: (i) The exposition of new mathematical ideas relevant to the modelling and analysis of modern technological processes, and (ii) the development of interesting mathematical methods with broad areas of applicability. (<http://uk.cambridge.org/journals/ejm>)

The *Glasgow Mathematical Journal* publishes original research papers in any branch of Pure or Applied Mathematics. Its policy is to feature a wide variety of research areas and it welcomes the submission of papers from all parts of the world. Papers can be submitted in hard copy or by e-mail. (<http://uk.cambridge.org/journals/gmj>)

The *IMA Journal of Applied Mathematics* is a

direct successor of the Journal of the IMA which was started in 1965 with the aim of publishing papers in all areas of the application of mathematics. Since the appearance of the IMA Journal of Numerical Analysis in 1981, analytic and numerical treatments of both physical and nonphysical applied mathematics problems, including those arising in industry, have formed the main part of the Journal's contents. The journal also seeks to publish papers on new developments of existing mathematical methods, especially those that have relevance to more than one field of application and also new mathematical methods suggested by particular applications. Longer papers, which survey recent progress in topical fields of mathematics and its applications, are also published. (<http://imsmat.oupjournals.org>)

The *IMA Journal of Numerical Analysis* publishes original contributions to all fields of numerical analysis, and submitted papers are judged on their merits as contributions to the subject. Articles will be considered which treat the theory, development or use of practical algorithms and interactions between these aspects. (<http://imanum.oupjournals.org>)

*Inverse Problems* is an international journal on the theory and practice of inverse problems, inverse methods and computerized inversion of data. *Inverse Problems* combines theoretical, experimental and mathematical papers on inverse problems, with numerical and practical approaches to their solution. A broad-based interdisciplinary journal for pure and applied mathematicians and physicists, *Inverse Problems* also appeals to workers in many other areas, including geophysics, optics, radar, acoustics, communication theory, signal processing and medical imaging. (<http://www.iop.org/journals/ip>)

The *Journal of Fluid Mechanics* publishes theoretical, numerical and experimental investigations into all aspects of the mechanics of fluids. In addition to publishing important new work on the fundamen-

tals of fluid mechanics, it is also concerned with their applications to other fields. (<http://www.jfm-www.damtp.cam.ac.uk>)

The *Journal of the London Mathematical Society* publishes papers (normally in the range of 9-17 pages each) from a broad spectrum within mathematics but with the main emphasis on pure mathematics. These range from number theory to functional analysis, from finite simple groups to the mathematical foundations of quantum theory, from logic and topos theory to the topology of Lie groups. (<http://uk.cambridge.org/journals/jlm>)

The *Journal of Physics A* is concerned with the fundamental mathematical and computational methods underpinning physics. It is particularly relevant to statistical physics, chaotic and complex systems, classical and quantum mechanics, classical and quantum integrable systems and classical and quantum field theory. (<http://www.iop.org/journals/jphysa>)

The *LMS Journal of Computation and Mathematics* is a purely electronic journal, retaining all the editorial features of a traditional journal including peer review and copy-editing to the same high standard as the other LMS journals. Papers in any or all of the following categories are invited: papers in mathematics that benefit from being electronic on grounds of their format; computational aspects of mathematics; mathematical aspects of computation. (<http://www.lms.ac.uk/jcm>)

The *Mathematical Proceedings of the Cambridge Philosophical Society* is one of the few journals publishing original research papers that cover the whole range of pure and applied mathematics, theoretical physics and statistics. All branches of pure mathematics are covered, in particular logic and foundations, number theory, algebra, algebraic geometry, algebraic and geometric topology, classical and functional analysis, differential equations probability and statistics. (<http://uk.cambridge.org/journals/psp>)

*Mathematika* is a general mathematical journal publishing articles of a high standard in all areas of mathematics, pure and applied. For historical reasons it has attracted articles particularly in number theory and fluid dynamics but welcomes all submissions. The journal takes an active approach to editing, and authors frequently incorporate significant improvements to their articles along the lines suggested by referees.

*Nonlinearity* is aimed primarily at mathematicians and physicists interested in research on nonlinear phenomena. The journal's coverage ranges from proofs of important theorems to papers presenting ideas, conjectures and numerical or physical experiments of significant physical and mathematical interest. (<http://www.iop.org/journals/non>)

The Edinburgh Mathematical Society was founded in 1883 and over the years, has evolved into the principal society for the promotion of mathematics research in Scotland. The Society has published its *Proceedings of the Edinburgh Mathematical Society* since 1884. This contains research papers on topics in a broad range of pure and applied mathematics, together with a number of topical book reviews. (<http://uk.cambridge.org/journals/pem>)

The *Proceedings of the London Mathematical Society* has been published since 1865, and today maintains its rank as one of the major international mathematical journals. The *Proceedings* publishes research papers (normally over 17 pages), covering a wide range of mathematical topics, including real and complex analysis, differential equations and related areas, topology, geometry, logic, probability and statistics, algebra, number theory and combinatorics. (<http://www.lms.ac.uk/publications/proceedings>)

The *Proceedings of the Royal Society of Edinburgh A* publishes original research papers in any branch of mathematics and its applications. A significant proportion of the papers is on topics related to partial dif-

ferential equations, with some emphasis on those that use modern analytic methods. The editors encourage papers in related areas such as global analysis including the applications of PDE to differential geometry. (<http://www.ma.hw.ac.uk/icms/publications>)

The *Proceedings (A) of the Royal Society* publishes refereed research papers in the mathematical, physical and engineering sciences. The emphasis is on new, emerging areas of interdisciplinary and multidisciplinary research. The Editor will also consider short reviews, but only if they contain original and interesting new ideas. *Proceedings A* is for mathematicians, physicists, engineers and other physical scientists. ([http://www.pubs.royalsoc.ac.uk/proc\\_maths/proc\\_maths.html](http://www.pubs.royalsoc.ac.uk/proc_maths/proc_maths.html))

The *Oxford Quarterly Journal of Mathematics* publishes original contributions to pure mathematics. Areas such as algebra, differential geometry, and global analysis receive particular emphasis. However the journal avoids specialization. (<http://www3.oup.co.uk/qmathj>)

The *Oxford Quarterly Journal of Mechanics and Applied Mathematics* publishes refereed papers describing original research in all areas of mechanics and applied mathematics, especially in theoretical mechanics (including, for example, fluids, solids, electromagnetism and wave phenomena). Papers describing the development of associated mathematical techniques and methods are also published. (<http://qjmam/oupjournals.org>)

*Geometry and Topology* is a fully refereed international journal dealing with all aspects of geometry and topology and their applications. *Geometry and Topology* is published in free electronic format. A printed version is published in partnership with International Press. (<http://www.maths.warwick.ac.uk/gt>)

Susan Hezlet  
LMS Publisher

## JOURNAL BACKLOG 2000-2001

Journal	Number of issues per year	Number of pages per year	Back log pages	Average time from submission to acceptance months	Average time from acceptance to publication months	Library price Year p = print version e = electronic version
Bulletin of the LMS	6	768	180	7.8	10	£193 (p + e) 2002
Classical and Quantum Gravity	24	6000	0	3	1.5	£1499 (p + e) 2001
European Journal of Applied Mathematics	6	750	200	2 - 24	3 - 4	£178 (p + e) 2001
Glasgow Mathematical Journal	4	600	150	6	15	£112 (p + e) 2001
IMA Journal of Applied Mathematics	6	624	0	3	5	£350 (p + e) 2002
IMA Journal of Numerical Analysis	4	660	200	6 - 8	7	£250 (p + e) 2002
Inverse Problems	6	2000	0	5	2.3	£791 (p + e) 2002
Journal of Fluid Mechanics	24	10000	800	9	5	£998 (p + e) £444 (p) 2002
Journal of the LMS	6	1536	144	7.5	10	£422 (p + e) 2002
Journal of Physics A	50	12000	20	23.5	1	£3071 (p + e) 2002
LMS Journal of Computation and Mathematics (e-journal)	1	250	0	6.2	0.9	Free (e) 2002
Mathematical Proceedings of the Cambridge Philosophical Society	6	1200	1500	3 - 4	15	£326 (p + e) 2002
Mathematika	2	440	800	12 - 24	18	£55 (p) 2000
Nonlinearity	6	2000	0	7.7	2.8	£633 (p + e) 2002
Proceedings of the Edinburgh Mathematical Society	3	672	50	7	14	£140 (p + e) 2002
Proceedings of the LMS	6	1536	350	8	12	£460 (p + e) 2002
Proceedings of the Royal Society of Edinburgh A	6	500	600	9	12	£240 (p + e) 2001
Proceedings (A) of the Royal Society	12	3000	0	11	5	£580 (p + e) 2002
Oxford Quarterly Journal of Mathematics	4	512	60	8	8	£170 (p + e) 2002
Oxford Quarterly Journal of Mechanics and Applied Mathematics	4	650	100	8	8	£240 (p + e) 2002
Geometry and Topology (e-journal)	1	800	0	6	0	Free (e) 2002

# LMS INVITED LECTURE SERIES

27 June - 2 July 2002

Professor Pierre van Moerbeke  
(Université de Louvain/Brandeis University)

## RANDOM MATRICES, RANDOM PERMUTATIONS AND INTEGRABLE LATTICES

The 2002 LMS Invited Lectures will be given at the Department of Applied Mathematics, University of Leeds. This series is held annually: a single speaker gives a course of 10 expository lectures, examining an important topic in depth, over a five day period. In the 2002 programme in Leeds there will be two lectures by Professor van Moerbeke every morning. The associated afternoon sessions will consist of two invited lectures to complement the course (further details will be announced later on).

The following intimately related questions will be discussed:

- What is the distribution of the eigenvalues of a random matrix, having a certain symmetry conditions to guarantee the reality of the spectrum? That distribution is given by matrix integrals. When the size of the matrix gets large, they get replaced by Fredholm determinants. What about universality of the distribution in the limit? What are the differential equations governing these distributions? These problems have their origin in the study of energy levels of heavy nuclei (Wigner, Dyson).
- What are the statistics of the length of the longest increasing sequence in random permutations or random words (Ulam's problem)? These questions apply to models of interface growth, polymers in random environments, first passage percolation problem, "dimer" configurations and non-intersecting Brownian motions.
- Integrals over groups and symmetric spaces, (or over their tangent spaces) lead to a variety of interesting matrix models, which satisfy non-linear differential equations. As a striking feature, the coefficients of the (perturbative) expansions have combinatorial or topological quantities, and can be computed recursively. Such integrals originate in the works of Feynman, 't Hooft, Bessis-Itzykson-Zuber and Witten, in the context of string theory.
- The sample canonical correlation coefficients (maximum likelihood estimates) for the canonical correlation coefficients of two Gaussian populations are the test statistic for the statistical independence of two populations. The distribution of these sample canonical correlation coefficients relate to interesting non-linear differential equations. This work goes back to statisticians, like Hotelling, James and Constantine.
- The four problems above and their "time"-perturbations are all solutions to integrable equations or lattices. In the large size limit, the matrix integrals are replaced by Fredholm determinants and are solutions to the Korteweg-de Vries equation. In the finite case, the matrix integrals are solutions to the Toda lattice, and to two new integrable lattices, the Pfaff and Toeplitz lattices. It is fair to say that matrix integrals point the way to new integrable systems, but also to new combinatorial and probabilistic questions!

All mathematicians interested in the topic are welcome to attend the lectures, although the total number of participants may be limited. There is a registration fee of £30, payable by **15 April 2002**. The registration fee will be waived for doctoral students. Limited funds are available to support participants. Priority will be given to research students and mathematicians who would benefit from attending the lectures, but who would otherwise be prevented from attending by financial constraints.

Accommodation will be in the Charles Morris Hall at the University of Leeds. A number of single, standard bedrooms have been reserved. The costs are: bed and breakfast: £24 + VAT per night; dinner, bed and breakfast: £36.50 + VAT per night; full board: £44.50 + VAT per night.

For further details, contact the organiser Vadim Kuznetsov ([vadim@maths.leeds.ac.uk](mailto:vadim@maths.leeds.ac.uk)), or visit the website ([http://maths.leeds.ac.uk/~vadim/LMS\\_course.htm](http://maths.leeds.ac.uk/~vadim/LMS_course.htm)), which also contains a registration form.

## WARWICK HOSTS FIRST EVER JOINT BMC/BAMC

In April 2002 (from Sunday evening 7th April to Friday evening the 12th) Warwick are hosts to the first ever joint meeting of the British Mathematical Colloquium (BMC) and British Applied Mathematics Colloquium (BAMC). The main aim of the meeting is to show that mathematics is a unity and that the conventional division into "pure" and "applied" mathematics is artificial. The week-long meeting is in the form of an arch starting in pure mathematics and ending in applied with an apex (reached on Wednesday) when the two areas are synthesised in a day devoted to joint topics.

Starting on Monday we have plenary talks by Joan Birman (Columbia) and Peter Sarnak (Princeton) and to correlate with these talks we have day-long special sessions in Braids and Low-Dimensional Topology - speakers Daan Krammer (Basel), John Crisp (Bourgogne), Patrick Dehornoy (Caen) and Peter Teichner (San Diego, to be confirmed) - and in Number Theory - speakers Detta Dickinson (York), Rob de Jeu (Durham), Jens Marklof (Bristol) and Anton Deitmar (Exeter). In addition there are two talks in the morning with an Analysis theme: Garth Dales (Leeds) and Keith Ball (UCL) and a variety of splinter groups in the afternoon. In the evening there is the usual BMC AGM followed by a discussion on the Progression from Post-16 to Higher Education (led by Mario Micalfel).

On Tuesday, the morning plenary talk is given by Sandy Green and his topic "The History of Representation Theory" dovetails with both the 'Focus on History' in the morning - speakers Jeremy Gray (Open U) and Jackie Stedall (Oxford) - and the day-long special sessions in Representation Theory - speakers Andrei Zelevinsky (Northeastern), G. Hiss (Aachen), Rob Curtis (Birmingham) and Bill Crawley-Boevey (Leeds). The two other morning speakers, with a Geometry and Topology theme, are Ulrike Tillman (Oxford) and Maxim

Kazarian (Moscow). There is again a variety of splinter groups in the afternoon and the day's talks finish with a plenary by Ingrid Daubechies (Princeton) which forms the start of the overlap theme continuing throughout Wednesday and Thursday morning. There is a Springer/CUP reception in the evening.

Wednesday is the climax of the meeting with a day devoted entirely to topics of interest to both pure and applied communities. We have three plenary talks given by Persi Diaconis (Stanford), Richard Karp (Berkeley) and David Mumford (Brown). Between these plenaries there are discussion meetings on topics of joint interest: in the morning Dynamical Systems - led by Steve Wiggins (Bristol) and Kostya Khanin (Newton/Herriot Watt) - in parallel with Discrete Mathematics - led by Bela Bollobas (Memphis) and Mark Dyer (Leeds) - and in the afternoon Quantum Phenomena - led by Gero Friesecke (Warwick) and TBA - in parallel with Partial Differential Equations - led by Simon Donaldson (Imperial) and Chris Budd (Bath). The day finishes with a Banquet at Chesford Grange with after-dinner entertainment from Graham Wilks (Keele).

Thursday morning's plenary speaker is Nick Trefethen (Oxford) and this is the last session of the overlap theme, though we are scheduling the applied minisymposia to start with those most likely to also appeal to "pure" mathematicians. Thursday evening's plenary lecture is the Stewartson Prize Lecture given by Jonathan Chapman (Oxford). On Thursday evening we have the Stewartson Prize Reception. Friday's plenary speakers are George C Papanicolaou (Stanford), who will give the first IMA Lighthill memorial lecture, and Vladimir Zakharov (Moscow and Arizona).

Throughout Thursday and Friday there are a variety of mini-symposia on applied themes. Those planned so far include: Critical Properties of Climate Systems, organiser: Julian Hunt (UCL); Current

Developments in Learning and Teaching in Mathematics, organiser: John Blake (Birmingham); Dissipative PDE, organiser: John Gibbon (Imperial College); Numerical linear algebra, organiser: Nick Higham (Manchester); Computational challenges in PDEs, organiser: Charlie Elliott (Sussex); Mathematics of control, organiser: Stuart Townley (Exeter); Epidemiology, organiser: Bryan Grenfell (Cambridge); Solid mechanics, organiser: John Willis (Cambridge). Suggestions for further applied minisymposia are invited; please submit title, organiser(s) and two-line description of content to stuart or mackay @maths.warwick.ac.uk by **1 January 2002**.

We are encouraging participants to stay for as long as they like and, in order to encourage as much mingling of the two traditional communities as possible, we have put a ceiling on registration at the three day rate. Thus for example a research student can stay the whole week for a registration fee of only £30. We are expecting this meeting to be extremely popular and, as space in all our facilities is strictly limited, mathematicians are advised to register as soon as possible. You can register either on line (follow the obvious links from the Warwick Mathematics home page (<http://maths.warwick.ac.uk/>) or by filling in the registration form enclosed with this *Newsletter*.

The meeting is being generously supported by the EPSRC, the LMS and the IMA.

Colin Rourke

## DEPARTMENTAL NEWS

**Newcastle upon Tyne University, Department of Mathematics** Dr David Samuels has been promoted to Reader and Dr Michael White has been promoted to Senior Lecturer.

**Lancaster University, Department of Mathematics and Statistics** Dr Amanda G. Chetwynd has been promoted to Professor

## LEVERHULME TRUST

The Trustees of the Leverhulme Trust have recently approved awards under their Research Project Grants scheme. The following mathematicians were amongst those awarded grants:

- B.J. Carr (Queen Mary, University of London) *Pixel lensing: a new probe of galaxies and stars*, £175,758 (36 months)
- A.D. Gilbert (Exeter) *Magnetohydrodynamic solar dynamo models* £76,728 (36 months)
- P.J. Rowley (UMIST) *Lengths of subgroups in Coxeter groups*, £12,123 (6 months)
- J. Siemons (East Anglia) *On the reconstruction index of permutation groups*, £124,683 (36 months)

## ICIAM 2003

The London Mathematical Society has recently become a large associate member of the International Council for Industrial and Applied Mathematics (ICIAM). One of the principal objects of ICIAM is to hold an international congress every four years. The last one (ICIAM 99) was held in Edinburgh in 1999, and the next one will take place in Sydney, Australia from 7-11 July 2003.

This Congress will hold minisymposia (a session of (typically) four speakers, devoted to a single theme): these minisymposia should have international appeal, and speakers should not come from a single nation or a single research group. There is a call for organisers, who decide on the theme, and invite the speakers. Details can be found on the website ([http://www.iciam.org/iciamHome/node22\\_ct.html](http://www.iciam.org/iciamHome/node22_ct.html)).

Four prizes are awarded at ICIAM to provide international recognition to individual mathematicians. These are:

- The **Lagrange Prize** for an experienced contribution to applied mathematics throughout their careers,

- The **Collatz Prize** for scientists under 42 years of age for outstanding work on industrial and applied mathematics,
- The **Pioneer Prize** for pioneering work introducing applied mathematics and scientific computing techniques to an industrial problem area or a new scientific field of applications,
- The **Maxwell Prize** for originality in applied mathematics.

Nominations are sought: details can be found on the website (<http://www.iciam.org./ydg012a.html>).

### NATURAL HISTORY MUSEUM'S ANNUAL SCIENCE LECTURE

The Natural History Museum's Annual Science Lecture will this year be delivered by Lord May (Oxford) on 28 November 2001 at 7.30 pm. The lecture is entitled 'Science, the natural world and public opinion: are we in crisis?' and will look at the effect of scientific advances on people's lives in both the developed and the developing worlds. He will explore how governments, science institutions and public opinion affect decisions about our use of the natural world. He will also consider the unique role played by natural history museums.

Robert May is President of the Royal Society, Professor of Zoology at Oxford and Imperial College, and former Chief Scientific Advisor to the UK government (1995-2000). He has carried out groundbreaking research into biodiversity and was a pioneer in the development of chaos theory. He is renowned as a world leader in mathematical biology, and by applying statistical models he has made important predictions about the spread of HIV and species extinction. In 1996 he won The Royal Swedish Academy of Science's Crafoord Prize.

The Annual Science Lecture, now in its seventh year, has established itself as one of the most important forums for stimulating scientific debate. Previous speakers include Professor Richard Dawkins and

Sir David Attenborough.

The lecture will be held at the Central Hall, The Natural History Museum. Tickets are priced at £13 adult, £11 concessions, £10 NHM Members and can be obtained from the Box Office (020) 7942 5555 (open 10 am - 4 pm, Monday-Friday). The doors open at 7.30 pm and the lecture ends 8.45 pm.

### COMPUTER ALGEBRA IN APPLICATIONS TO INTEGRABLE SYSTEMS WORKSHOP

As part of the Integrable Systems programme which runs at the Isaac Newton Institute, Cambridge from 23 July - 20 December 2001, a workshop on Computer Algebra in Applications to Integrable Systems will be held on the weekend of 16-17 November. This workshop aims to bring together developers and users of symbolic algorithms and software applicable for the study of systems of differential equations.

The workshop will take place at the Newton Institute. Talks are planned for Friday afternoon starting 2pm and Saturday morning and early afternoon. On Saturday late afternoon computer access is provided for individual use between developers and users of symbolic software.

To make the two days as efficient as possible, a writeable webpage (<http://integrablesystems.swiki.net>) is provided, with two blackboards, one for software programs that will be available (together with details of their authors) and another with problems, which program authors can consider, to see if their systems can be used to resolve. Participants are encouraged to add comments. This, and further information about the Workshop, is available from the web (<http://aji.maths.qmw.ac.uk/is/CA+IntSys.html>) where, for example, a speakers list is posted. There are no workshop fees or other costs. Accommodation is not provided and has to be arranged by participants themselves.

## YORKSHIRE DIFFERENTIAL GEOMETRY DAY

A Yorkshire Differential Geometry Day will be held on 2 November 2001 at the University of Hull. This is a joint meeting of the Yorkshire Differential Geometry Day seminars of the Universities of Hull, Leeds and York and is supported by an LMS Scheme 3 grant. Speakers are Andreas Arvanitoyeorgos (Athens), Josef Dorfmeister (Munich), Dominic Joyce (Oxford) and John Rawnsley (Warwick). For further information contact Jurgen Berndt, Department of Mathematics, University of Hull (tel: 01482 465149, fax: 01482 466218, e-mail: J.Berndt@hull.ac.uk) or view the website (<http://www.hull.ac.uk/math/research/areas>).

## NATO ADVANCED STUDY INSTITUTE

The 41st Séminaire de Mathématiques Supérieures is to be held from 8-19 July 2002 at the Université de Montréal, Canada, on Normal Forms, Bifurcations, and Finiteness Problems in Differential Equations. The main speakers are: A. Bolibrukh (Steklov, Moscow), F. Dumortier (Limburg), J. Ecalle (Orsay), V. Gelfreich (Freie U. Berlin), A. Glutsuk (ENS Lyon), J. Guckenheimer (Cornell), Y. Ilyashenko (Independent U. Moscow), V. Kaloshin (Courant Inst.), A. Khovanskii (Toronto/Moscow State), J-P. Ramis (Toulouse), R. Roussarie (Dijon), C. Rousseau (Montréal), D. Schlomiuk (Montréal), S. Yakovenko (Weizmann).

The application deadline is **28 February 2002**. Further information and application forms can be found on the web (<http://www.dms.umontreal.ca/sms>) or contact Ghislaine David, SMS coordinator, Département de Mathématiques et de Statistique, Université de Montréal, CP 6128-Centre-ville, Montréal (Qc), Canada H3C 3J7 (tel: (514) 343-6710, fax: (514) 343-5700, e-mail: [sms@dms.umontreal.ca](mailto:sms@dms.umontreal.ca))

## BRITISH SOCIETY FOR THE HISTORY OF MATHEMATICS MEETINGS

### History of Number Theory

A conference on the History of Number Theory will be held on 10 November 2001 in the Wolfson Room, Centre for Mathematical Sciences, Cambridge. The speakers are:

- J.H. Coates (Cambridge) *The forgotten problem*
- C. Goldstein (Paris) *Enigma Variations: Fermat's arithmetic in context*
- J.W.S. Cassels (Cambridge) *Number theory as an experimental discipline*
- B.J. Birch (Oxford) tba

The conference is free. For further information, please see the British Society for the History of Mathematics website (<http://www.dcs.warwick.ac.uk/bshm/>) or contact Dr J.J. Gray (e-mail: [J.J.Gray@open.ac.uk](mailto:J.J.Gray@open.ac.uk)).

### Christmas Meeting and AGM

The Christmas Meeting and AGM will be held on Thursday 20 December 2001 at the Gustave Tuck Theatre, University College, London. This year the talks to be given will be dedicated to the memory of John Fauvel. The topics will be based on work jointly undertaken with John or inspired by him. There are four invited speakers:

- Alex Craik (St Andrews) *Edward Sang (1805-1890): calculator extraordinary*
- Florence Fasanelli (College-University Resource Institute, Washington, DC) *Three dimensional links between the history of mathematics and the history of art*
- Jeremy Gray (Open University) *Fauvel and Gray and the Reader*
- Jan van Maanen (University of Groningen, NL) *John, Pell and a 1644 trig-trick*

As usual, there will also be a session of

short papers by members where it is proposed to have three papers of 15 minutes each. A special edition of the BSHM Newsletter containing all of the papers given at the meeting will be published early in 2002.

For further information about the talks contact June Barrow-Green, Faculty of Mathematics & Computing, Open University, Milton Keynes MK7 6AA (j.e.barrow-green@open.ac.uk). For general enquiries contact Tony Mann, School of Computing & Mathematical Sciences, University of Greenwich, London SE 10 9LS (A.Mann@gre.ac.uk).

### VISIT OF DR S. CHAKRAVARTY

Dr Sarbarish Chakravarty (University of Colorado, Colorado Springs) will be visiting the UK in November and December supported by an LMS Scheme 2 grant. For further information contact Dr Rod Halburd, Department of Mathematical Sciences, Loughborough University, Loughborough, Leicestershire LE11 3TU (e-mail: R.G.Halburd@lboro.ac.uk, tel: 01509 223 188, fax: 01509 223 969).

### LONDON - SUSSEX - SOUTHAMPTON TOPOLOGY SEMINAR Winter Meeting 2001

This is the 15th annual winter meeting of this seminar, which is held jointly by Kings College, London, the Universities of Sussex and Southampton.

This year the meeting will be at KCL on Friday 7 December, beginning at 11 am, or perhaps earlier, depending on demand for short talk slots. Main speakers include Peter Buser (EPF Lausanne), Ruth Charney (visiting Oxford) and Patrick Dehornoy (Caen). There will be an opportunity for participants to present a short talk of 20-30 minutes; anyone wishing to give one of these should contact one of the organisers by e-mail (bill.harvey@kcl.ac.uk, s.r.bullett@qmw.ac.uk). A Chinese Banquet is planned for the evening.

Financial support from the LMS will be available for postgraduates wishing to attend. More details on the programme will be posted on the KCL Mathematics Department website (<http://www.mth.kcl.ac.uk/events/#conferences>).

### Warwick Symposium

### GEOMETRIC MECHANICS AND SYMMETRY

Mathematics Research Centre - University of Warwick

September 2001 - July 2002

#### Events at Warwick:

9-15 December 2001	Geometry and Symmetry in Continuum Mechanics
17-27 March 2002	Semi-Classical and Quantum Multibody Systems
14-20 April 2002	Classical N-Body Systems and Applications
21-27 July 2002	Geometry, Symmetry and Mechanics II

#### Satellite workshops:

22-23 April 2002	Astrodynamics (Surrey)
25-26 April 2002	Invariant and Symmetry-Preserving Simulation Algorithms for N-Body Problems (Leicester)

Further information: <http://www.maths.warwick.ac.uk/research>

**LONDON MATHEMATICAL SOCIETY**  
in association with the Isaac Newton Institute

**Spitalfields Day**

**Loughborough University**

**Friday 30 November 2001**

**ALGEBRAIC ASPECTS OF INTEGRABILITY**

**Organisers: Yu. Berest (Cornell), A.P. Veselov (Loughborough)**

All lectures will take place in  
Room W 0 04 in the Sir David Davies Building

- 13.30 - 14.20 **P. Etingof** (MIT)  
*Symplectic reflection algebras and Calogero-Moser systems*
- 14.30 - 15.20 **G. Wilson** (Imperial)  
*Integrable systems and noncommutative projective geometry*
- 15.30 - 16.10 Tea
- 16.10 - 17.00 **A. Nakayashiki** (Kyushu)  
*Affine Jacobians and integrable systems*
- 17.10 - 18.00 **O. Chalykh** (Loughborough)  
*Algebraic integrability, bispectrality and Macdonald conjectures*
- 18.15 Reception

Anyone interested is welcome to attend. Please let Tracey Andrew at the Isaac Newton Institute know by 20 November 2001 if you intend to come, to help us plan for lunch (tel: (01223) 335984; fax: (01223) 330508; e-mail [t.andrew@newton.cam.ac.uk](mailto:t.andrew@newton.cam.ac.uk)). There are limited funds available to assist research students to attend: please apply by **20 November 2001** to Tracey Andrew at the Institute. Scientific enquiries may be addressed to Professor A.P. Veselov (e-mail: [A.P.Veselov@lboro.ac.uk](mailto:A.P.Veselov@lboro.ac.uk)). For further information visit the website (<http://www.lboro.ac.uk/about/map/map1.html>).



S.S. NOVIKOV  
HONORARY MEMBER 1987

## 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>).

### NOVEMBER 2001

- 2 Yorkshire Differential Day, Hull University (298)
- 2-3 North British Functional Analysis Seminar, University of York (297)
- 9 Spectral Day, Leicester University (296)
- 10 History of Number Theory BSHM Meeting, Cambridge (298)
- 16 Edinburgh Mathematical Society Meeting, Glasgow (296)
- 16-17 Computer Algebra in Applications to Integrable Systems Workshop, Isaac Newton Institute, Cambridge (298)
- 23 LMS Annual General Meeting, London (295)
- 24 Belfast Functional Analysis Day 2001, Queen's University Belfast (296)
- 28 Natural History Museum's Annual Science Lecture, Lord Robert May, London (298)
- 30 Algebraic Aspects of Integrability, LMS Spitalfields Day, Loughborough University (296)

### DECEMBER 2001

- 2-8 ICMS Workshop, Edinburgh (295)
- 3-5 Pattern Formation by Swimming Micro-organisms and Cells Meeting, Leeds University (294)
- 7 Edinburgh Mathematical Society Meeting, Heriot-Watt (296)
- 7 London Topology Seminar, King's College London (298)
- 9-15 Geometry and Symmetry in Continuum Mechanics Workshop, Warwick University (298)
- 10-14 Topology, Operads and Quantisation Workshop, Warwick University (298)
- 12-17 Research into Problems with Memory and After-effect Workshop, Chester (298)
- 20 BSHM Christmas Meeting and AGM, University College London (298)

### JANUARY 2002

- 6-11 Mathematical Biology, LMS/EPSC Short Course, Manchester University (296)
- 9 British Women in Mathematics Day, De Morgan House, London (298)
- 11 The Future of Theoretical Physics and Cosmology Conference, Cambridge University (297)
- 18 Edinburgh Mathematical Society Meeting, Edinburgh (296)

### FEBRUARY 2002

- 15 Edinburgh Mathematical Society Meeting, Edinburgh (296)
- 15 Mary Cartwright Lecture, London (298)
- 27 LMS Midlands Regional Meeting, Birmingham (298)

### MARCH 2002

- 8 Edinburgh Mathematical Society Meeting, Dundee (296)
- 17-27 Semi-Classical and Quantum Multibody

Systems Workshop, Warwick University (298)

24-28 Differential Equations LMS/EPSC Short Course, Cambridge University (297)

### APRIL 2002

- 7-12 Joint BMC/BAMC, Warwick University (296)
- 14-20 Classical N-Body Systems and Applications Workshop, Warwick University (298)
- 22-23 Astrodynamics Workshop, Surrey University (298)
- 25-26 Invariant and Symmetry-Preserving Simulation Workshop, Warwick University (298)
- 25-26 Algorithms for N-Body Problems Workshop, Leicester University (298)

### MAY 2002

3 Edinburgh Mathematical Society Meeting, Aberdeen (296)

### JUNE 2002

- 7 Edinburgh Mathematical Society Meeting, St Andrews (296)
- 11 Northern Regional Meeting, Liverpool University (298)
- 17-21 Householder Symposium XV, Peebles Hydro Hotel, Scotland (296)
- 21 LMS Meeting, Hardy Lecture, London (298)
- 24-28 Analytic Number Theory Workshop, Max Plank Institute, Bonn (288)
- 27-2 July LMS Invited Lectures, Professor P. van Moerbeke, Leeds University (298)

### JULY 2002

- 1-6 The Teaching of Mathematics Conference, Crete, Greece (297)
- 7-19 Numerical Analysis Summer School, University of Durham (295)
- 8-19 Normal Forms, Bifurcations and Finiteness Problems in Differential Equations SMS-NATO ASI Meeting, Université de Montréal, Canada (298)
- 21-26 Computation and Analytic Problems in Spectral Theory Workshop, University of Wales (296)
- 21-27 Geometry, Symmetry and Mechanics II Workshop, Warwick University (298)
- 26-27 Meeting in honour of 65th birthday of M.S.P. Eastham, University of Wales (296)

### AUGUST 2002

- 5-15 New Directions in Dynamical Systems, Ryukoku and Kyoto Universities (293)
- 20-28 ICM2002, Beijing, China (297)
- 29-2 Sept Nonlinear Partial Differential Equations International Conference - Theory and Approximation, City University of Hong Kong (297)

### APRIL 2003

7-10 BMC, University of Birmingham (296)

### JULY 2003

7-11 ICIAM 2003, Sydney, Australia (298)

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.

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