THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

FORTHCOMING SOCIETY MEETINGS

Friday 20 June 2003 – London
J.C. Rickard, M.J. Taylor (Fröhlich Lecture)
Tuesday 22 July 2003 – Edinburgh
Hodge Centenary Meeting
Joint Meeting with the Edinburgh Mathematical Society
24 October 2003 - Southampton
South West and South Wales Regional Meeting
Nonlinear Dynamics
21 November 2003 - London
L.C.G. Rogers, M.H.A. Davis (Naylor Lecture)

PRESIDENCY OF THE SOCIETY

The President, Professor Peter Goddard, has informed Council that he has been appointed Director of the Institute for Advanced Study in Princeton, USA, from 1 January 2004. Consequently, and with great regret, he will be standing down from the Society's Presidency at the AGM on 21 November 2003.

Council has expressed its congratulations to Professor Goddard on this very prestigious appointment – and regrets that it will be losing him so soon.

Council is delighted to announce that Professor Frances Kirwan FRS has indicated that, subject to election at the AGM, she will be happy to take up the appointment from November 2003, rather than a year later as would normally have been the case.

Professor Kirwan has been a Fellow of Balliol College, Oxford since 1986 and has held the title of Professor in Mathematics at the University of Oxford since 1996. She studied for her doctorate in symplectic and algebraic geometry under Sir Michael Atiyah, then spent two years at Harvard and the IHES before returning to Oxford. She was awarded the Society's Whitehead Prize in 1989, served on the LMS Council from 1996–98 and was elected a Fellow of the Royal Society in 2001.

INTERNATIONAL REVIEW OF MATHEMATICS
Report 4

The major news in this month's report is the announcement of the full 13-person International Panel. It comprises:

Jean-Pierre Bourguignon, Director, IHES, France.
Michel Brou , Director, Institut Henri Poincaré, Paris, France.
Stephen Davis, Department of ESAM, Northwestern University, USA.
Don Dawson, School of Mathematics and Statistics, Carleton University, Canada.

Robbert Dijkgraaf, Korteweg-de Vries Institute for Mathematics, University of Amsterdam, The Netherlands.

Ron Graham, Cal-(IT)², University of California, San Diego, USA.

John Guckenheimer, Center for Applied Mathematics, Cornell University, USA.

Peter Hall FRS, Centre for Mathematics and its Applications, Australian National

The 2003 British Logic Colloquium will be held in St Andrews, Scotland, from dinner time on Wednesday 3 September to lunchtime on Saturday 6 September, inclusive. Accommodation will be in McIntosh Hall at the University. A General Meeting of the BLC will be held on the Thursday evening, followed by a conference dinner. The programme committee and local organisers are Roy Dyckhoff and Stephen Read. For further details visit the conference website (www.dcs.st-and.ac.uk/~blc) or email Roy Dyckhoff (rd@dcs.st-and.ac.uk). This meeting is supported by an LMS conference grant.

DIFFERENTIAL AND FUNCTIONAL EQUATIONS
IN THE COMPLEX DOMAIN

There will be a meeting on Differential and Functional Equations in the Complex Domain in Loughborough from Saturday 28 June to Tuesday 1 July 2003. The aim of this meeting will be to discuss ideas that lie at the interface between complex analysis (eg, complex function theory, Riemann-Hilbert problems) and the theory of differential and functional equations (eg, Painlevé equations, asymptotics, iso-spectral problems).

Speakers will include Mark Ablowitz, Milne Anderson, Walter Bergweiler, Sarabarish Chakravarty, Peter Clarkson, Thanasis Fokas, Walter Hayman, John King, Jim Langley, Victor Novokshenov, Simon Ruijsenaars and Norbert Steinmetz.

This meeting is partially supported by the London Mathematical Society. There are some funds available for attendance by UK postgraduate students. For more information, including travel information, visit the website www.lboro.ac.uk/departments/ma/events/diff-conf-03/diff-conf.html or e-mail Rod Halburd (R.G.Halburd@lboro.ac.uk).

UNITY OF MATHEMATICS

An international conference on The Unity of Mathematics will be held in Cambridge, Massachusetts, USA, from 31 August to 4 September 2003. The meeting will also celebrate I.M. Gelfand's 90th birthday. The conference will address important recent developments in geometry/physics and representation theory. The speakers have been asked to emphasize interrelations between fields, the "unity of mathematics"

Stability of multidimensional viscous shocks Professor M. Williams (University of North Carolina, USA)
Planar stability criteria for multidimensional viscous shock waves Professor K. Zumbrun (Indiana University, USA)

Mathematical Foundation of Turbulent Viscous Flows will take place at Martina Franca (Taranto) from 1-6 September. Course directors are Professor M. Cannone (Université de Marne-la-Vallée) and Professor T. Miyakawa (Kobe University).

Lectures:
The Navier-Stokes equations of viscous fluids and questions of turbulence theory Professor P. Constantin (University of Chicago)
Incompressible fluids and strange attractors Professor G. Gallavotti (Università di Roma e Accademia dei Lincei)
The theory of strong approximation of weak limits via the method of averaging with applications to Navier-Stokes equations Professor A. Kazikhov (Lavrentyev Institute of Hydrodynamics, Novosibirsk)
Size estimates on solutions of nonlinear evolution equations and consequences Professor Y. Meyer (Ecole Normale Supérieure de Cachan et Institut de France):
The asymptotic analysis theory of fluid equations Professor S. Ukai (Yokohama National University)

Symplectic 4-Manifolds and Algebraic Surfaces will take place at Cetraro (Cosenza) from 2-12 September. Course directors are Professor Fabrizio Catanese (Bayreuth University) and Professor Gang Tian (MIT, Boston, USA)

Lectures:
Pseudo holomorphic curves and symplectic isotopy Professor B. Siebert and Gang Tian (University of Bochum and MIT)
Smoothing of singularities and deformation and differentiable type of surfaces Professor M. Manetti (Universita di Roma "La Sapienza")
Lefschetz pencils, branched covers and symplectic invariants Professor D. Auroux and I. Smith (MIT, Boston, USA and Cambridge University, UK)
Lagrangian spheres and Dehn twists in dimension 4 Professor P. Seidel (Imperial College, London)
Classification and deformation types of complex and real manifolds Professor F. Catanese (Bayreuth University)

CIME can offer some fellowships. An on-line application form for each course can be found on the CIME website (www.math.unifi.it/~cime).

NORTHERN REGIONAL MEETING

The third Northern Regional Meeting of the London Mathematical Society took place in Manchester on Tuesday 11 March, and was attended by about 60 people.

Following the Society's business meeting, chaired by Programme Secretary, Dr S. Huggget, the first lecture, by Professor J.C. Jantzen of the University of Aarhus, was entitled 'Representations of reductive Lie algebras in prime characteristics'. Professor Jantzen's lecture was an accessible introduction to recent advances in the theory of modular representations of Lie algebras of reductive algebraic groups over a field of prime characteristic. When dealing with irreducible representations of such Lie algebras one is reduced to the study of certain finite dimensional associative algebras, called reduced enveloping algebras. The topics discussed in Professor Jantzen's lecture were as follows:

reduction of the general case to the so-called nilpotent case; the Kac-Weisfeiler conjecture on p-divisibility of dimensions of simple modules; recent conjectures of Lusztig relating simple modules in blocks of reducedb

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features and requirements of mathematics, and the need for EPSRC to respond to those attributes in order to maintain a strong maths base, will be stressed in that discussion.

11. The growth in the Society's activities to raise the profile of mathematics led to the suggestion that the Society should establish a Mathematics Promotion Unit to collect data, to undertake activities promoting mathematics to key audiences, and co-ordinate activities promoting mathematics and careers in schools.

   The proposed remit for such a Unit would be as follows.

   (i) To promote mathematics education and mathematics research to particular target audiences, particularly to policy makers and policy advisers in government, parliament, and secondary and higher education.

   (ii) To collect, maintain and publish a comprehensive data set on mathematics education and mathematics research.

   (iii) To promulgate the Society's policies on mathematics, including through submissions to inquiries, reports and meetings.

   (iv) To work with the media to fulfil the Unit's objectives.

   (v) To maintain a database of mathematicians able to speak to the media on mathematics or policy for mathematics.

   (vi) To co-ordinate activities aimed at promoting mathematics education to young people in schools, in particular by means of an 'Ambassadors' scheme, links with universities, and access to information on mathematics in universities and careers from a mathematics-based education.

   (vii) To consult and coordinate with the IMA and RSS.

Plans for the Unit are being developed, together with an outline budget, before Council approves what would be a substantial commitment. The Unit would be overseen by the General Purposes Committee, and reports on its plans and activities would be brought regularly to Council.

THE FUTURE OF HIGHER EDUCATION

A response to the Government's White Paper 'The Future of Higher Education' has been prepared by a group comprising Dr W.B. Stewart (Education Secretary), Professor R.T. Curtis, Professor M.A.H. MacCallum and Dr E. Winstanley, and submitted on behalf of the Society. The response is available through the website (www.lms.ac.uk) under the 'Policy' channel.

NO ROOM AT HILBERT'
A review of "Infinities" by John Barrow and Luca Ronconi.

In Milan last month it was not tickets for the Champions League game at the San Siro or Domingo at La Scala that were commanding exorbitant prices on the black market. Instead, an esoteric play about mathematics was the talk of the town. Tickets for the Piccolo Teatro's production of "Infinities" sold out within hours of going on sale as long ago as last February. The play was first premiered in the spring of 2002 when its three week run received over 70 rave reviews culminating in the award in December 2002 of Italy's version of the Olivier award for best play.

"Infinities" is the result of a collaboration between cosmologist John Barrow in Cambridge and the Italian theatre director Luca Ronconi. Barrow is director of the hugely successful Millennium Mathematics Project, a web-based initiative to bring the excitement of mathematics into schools. He is also author of many popular mathematics books including his

arriving without tickets, un

LONDON MATHEMATICAL SOCIETY
AND
EDINBURGH MATHEMATICAL SOCIETY
JOINT MEETING

Tuesday 22 July 2003, Edinburgh

As part of the Internati

TOPICS IN ALGEBRAIC GEOMETRY

LMS/EPSRC Short Course

University of Bath, 15-19 September 2003
Organiser: G.K. Sankaran

Algebraic geometry occupies a central place in modern pure mathematics, with connections to number theory, theoretical physics and differential geometry in particular. For example, elliptic curves and modular curves play vital roles in arithmetic; startling advances in the theory of higher-dimensional varieties and moduli spaces have emerged from, and contributed to, physics; and the theory of real 4-manifolds has similarly interacted with complex algebraic surfaces. One of the most influential problems for computer algebra has been to carry out explicit calculations in algebraic geometry.

Within algebraic geometry, there has been great progress over the last few years. The study of algebraic varieties of dimension three and more, initiated by Mori and others in the 1970s, has reached an advanced stage. Major results have been proved in enumerative geometry, especially on moduli spaces. The geometric meanings contained in resolutions of ideals (syzygies) have been much better explained and can be applied very directly, often with computer assistance.

In part because of its many connections, algebraic geometry is often seen as being hard to learn, and is left in the hands of specialists. This course will try to broaden the appeal of the subject by presenting three different topics at a level suitable to graduate students in algebraic geometry but in a s

Workshop

Computational Modelling in Medicine

17-19 September 2003, Edinburgh

www.ma.hw.ac.uk/icms/meetings/2003/cmm/index

The meeting will be organised around the two interlinked themes of the "Vascular and pulmonary systems and soft tissue mechanics". The purpose is to bring together people who work on mathematical modelling, numerical analysis, simulation and direct medical applications related to these areas, and to act as a focus to stimulate further research and the development of ever more realistic medical simulations.

Registration closes on **5 July**. Contributed papers are invited, and funds are available to support the attendance of participants based at UK Higher Education Institutions. The webpages and online application form contain further details.

The meeting also incorporates (on Wednesday morning 0 TD(m)Tj68 0 TD(o)Tj 43 3 0 TD(t)Tj 24 0 TD(a)Tj 38 0 TD(i)Tj 24 0 TD(n)

ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES

TOWARDS A PREDICTIVE BIOLOGY?

20 – 23 Jan

WILLIAM BURNSIDE
DE MORGAN MEDALLIST 1899

William Burnside received the De Morgan Medal on 9 November 1899. Burnside, bred as an applied mathematician in the Cambridge School of Natural Philosophy with a special mastery of hydrodynamics, turned in maturity to pure mathematics. He made a profound study of elliptic functions. Another subject which absorbed his attention was differential geometry. In 1892, work on automorphic functions led Burnside into the theory of groups, though scattered references to discontinuous groups of finite order occur in some of his earlier papers. From the early nineties onwards he concentrated on this subject. Paper after paper appeared in an ordered development, each providing some fresh contribution. His *Theory of Groups* was published in 1897.

DIARY
June 2003
17   Virtual Learning Environments Course, Newcastle University (316)
28 – 1 July Dif

September 2004

14-18 Boundary Integral Methods III: Theory and Applications, IMA Conference, Brunel University (316)

Change to (316)

June 2003

20   LMS Meeting, Fröhlich Lecture, University College, London (316)

July 2003

22   LMS/Edinburgh Mathematical Society Joint Meeting,