THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 306 July 2002

FORTHCOMING SOCIETY MEETINGS

Wednesday 23 October 2002 - London
The Four-colour Problem
Joint meeting with the British Society
for the History of Mathematics

Friday 22 November 2002 - London
Annual General Meeting
J.T. Stuart (Presidential Address), J.D. Gibbon

Monday 25 November 2002
South West and South Wales Regional Meeting

COUNCIL DIARY
10 May 2002

Members of Council and certainly many others besides were saddened to hear of the premature death on 5th May of the distinguished analyst Barry Johnson, a former President of the Society. John Pym was the official representative of the Society at Barry's funeral in Tynemouth the day after the meeting, but there were many, many others there; the chapel was packed to overflowing.

The news of the election the previous day of five mathematicians to the Royal Society was much more welcome. It was very pleasant to congratulate the two of them who were in the room as members of Council, and particularly satisfying for me that my sister was another of the five.

The President reported on the annual meeting of EPSRC, which he had attended in April. EPSRC had conducted studies on grant submissions and had identified three distinct groups of applicants, a 'hyperactive elite' of 15% of the research community which received 50% of EPSRC's funding, a second group applying less frequently but reasonably successfully, and a third group making frequent but much less successful applications, which EPSRC considered to be problematic. Council was concerned by EPSRC's suggestion that universities should apply internal quality assessment of grant proposals before submission.

It was felt that there was a danger of equating quality with wealth generation. We also heard that EPSRC was anxious that its community should reap its share of the benefits of the European Framework 6. Council felt that Brussels was not yet convinced of the importance of mathematics at the heart of the Physical Sciences and Engineering (somewhat in contrast to EPSRC), and that some lobbying on this matter would not go amiss. Council decided that it needed to develop direct contacts as well as to work through the EMS.

The Publisher and the Publications Secretary had attended a European Mathematical Society workshop in

Berlingen, Switzerland on the Infrastructure of Mathematics in Europe. There had been much discussion of the plan to digitise the entire research literature of mathematics, an extremely ambitious idea, which might be considered to be a mathematical equivalent of the human genome project. If successful it will produce a tool that could revolutionise the way that mathematical research is conducted. It was felt that the UK is currently under-represented in this project. The LMS has now declared an interest in it.

The day of the meeting was Helen Woodward's last day as the LMS' Administrative Officer, since, equipped with her recent first class honours degree from the Open University, she is moving to the Statistical branch of the Civil Service. Helen was thanked warmly for the excellent work she has done during her time at the LMS.

Sarah Rees

ANNUAL ELECTIONS TO LMS COUNCIL

The normal way in which nominations to Council are now made is via the Nominating Committee, but there is still provision for any member of the Society to make nominations directly. Anyone who wishes to propose someone for a position as an Officer of the Society or as a member of Council is invited to inform M.J. Taylor, who is currently chairing the Nominating Committee (martin.taylor @umist.ac.uk) or one of the other members of the Committee (A.R. Camina, T.A. Gillespie, N.J. Hitchin, U. Martin, M.A.H. MacCullum, J.F. Toland and E.G. Rees). Any direct nominations should be sent to the General Secretary (Professor N.L. Biggs, Department of Mathematics, London School of Economics, Houghton Street, London WC2A 2AE, n.l.biggs@lse.ac.uk) to arrive before noon on **1 September 2002**; such nominations must bear the signatures of the Nominator and three Seconders and of the Nominee.

HONORARY MEMBERSHIP

PROFESSOR VAUGHAN JONES FRS is elected to Honorary Membership of the Society in recognition of his profound achievements in the theory of von Neumann algebras and its applications. His work has had extensive ramifications throughout von Neumann algebra theory and also across a wide spectrum of fields in mathematics and physics.

Some aspect of Jones' work will be known to almost any mathematician or theoretical physicist. In a ground-breaking paper in 1983, he investigated the relative dimensions of subfactors (simple subalgebras of simple von Neumann algebras) and showed that they could only take certain values.

The study of subfactors has since expanded into an enormous and fruitful industry, but even in Jones's earliest work the essential technical innovations such as the 'Jones tower' are all present. Even more remarkable than the growth of subfactor theory is the multitude of deep applications that this work has generated through his innovative ideas. These include knot theory (which was completely revitalised by the introduction of the Jones polynomial), quantum field theory and statistical mechanics.

The iterative construction of the Jones tower gives rise to a sequence of projections (the 'Jones projections') and an associated nested sequence of algebras whose generators satisfy the same relations as those of the braid group. It is this that gives rise to the connection with the theory of knots and links. The traces on these algebras led Jones to discover a new polynomial invariant for knots, providing the key to the solution of long standing open problems. In subsequent work, similar constructions have led to an impressive array of new polynomial invariants for knots and links. It was soon realised that these same braid group relations also occur in the Yang-Baxter equations that arise in physics, and that the Jones projections are those of the Temperley-Lieb algebra in statistical mechanics. This has

greatly enhanced the fruitful two-way exchange of ideas between these subjects, leading for example to the classification of modular invariant partition functions in rational conformal field theory.

Vaughan Jones was the Society's Hardy Lecturer in 1989. He was elected a Fellow of the Royal Society in 1990, the year in which he was also awarded a Fields Medal. He received an honorary degree from the University of Wales in its centenary congregation in 1993. Among many other honours, he has received the freedom of the City of Auckland, and he was the first recipient of the Royal Society of New Zealand's highest award, the Rutherford Medal, for his contributions to knot theory.

ROYAL SOCIETY-WOLFSON RESEARCH MERIT AWARD

Congratulations to Martin Taylor, Professor of Mathematics at UMIST and President of the Society from 1998 to 2000, who has been awarded a five-year Royal Society-Wolfson Research Merit Award to support further research activity. The award, which is jointly funded by the Wolfson Foundation and the Office of Science and Technology, is worth up to £75,000 per year, with up to 50% of the award available for salary enhancement and the remainder for research expenses.

Martin Taylor was among six outstanding scientists, and among two from UMIST, who were selected in the third round of the Royal Society-Wolfson Research Merit Awards scheme, bringing to 26 the total number of senior researchers who have won the award since the programme was first launched last year to attract and retain scientists in Britain. He will use the award to develop ideas at the new Manchester Institution for Mathematical Sciences (MIMS), a collaborative project with the University of Manchester to create a centre which will run academic programmes and host visits from highly-regarded mathematicians.

VISIT OF DR L.V. BOGDANOV

Dr Leonid V. Bogdanov (Landau Institute for Theoretical Physics, Moscow) will visit the Department of Mathematical Sciences at Loughborough University from 15 September to 10 October. The visit is supported by an LMS Scheme 5 grant.

VISIT OF DR S. CRIVEI

Dr Septimiu Crivei (Cluj) will visit the Department of Mathematics at the University of Manchester from 29 July - 1 September 2002. For further information contact Professor Mike Prest, (tel: 0161 275 5875, fax: 0161 275 5819, e-mail: mprest@maths.man.ac.uk). The visit is supported by an LMS Scheme 5 grant.

VISIT OF DR A.B. KONOVOLOV

Dr Alexander B. Konovolov (Zaporozhye University, Ukraine) will visit the School of Mathematics and Statistics at the University of St Andrews from 15 August to 15 September. During this time he is expected to give seminars in St Andrews, Glasgow and Heriot-Watt Universities. For further information contact Dr C.M. Campbell, Mathematical Institute, North Haugh, St Andrews KY16 9SS, Fife (tel: 01334 463 739, e-mail: cmc@st-and.ac.uk). The visit is supported by an LMS Scheme 5 grant.

LEVERHULME EMERITUS FELLOWSHIP

A two-year Leverhulme Emeritus Fellowship, starting on 1 August 2002, has been awarded to Emeritus Professor R. Brown (Bangor) for work on 'Crossed complexes and homotopy groupoids'. The award will support the production of a book giving an introduction to and coherent account of the main aspects of work published since 1976 in this area.

WORKSHOP DOMAINS VI

The meeting will take place at the University of Birmingham on 16-19 September 2002. It follows immediately the annual meeting of the British Logic Colloquium at the same institution. The workshop is aimed at computer scientists and mathematicians alike who share an interest in the mathematical foundations of computation. The workshop will focus on domains, their applications and related topics. The emphasis is on the exchange of ideas between participants similar in style to Dagstuhl and Oberwolfach seminars.

Domain theory has had applications to programming language semantics and logics (lambda-calculus, PCF, LCF), recursion theory (Kleene-Kreisel countable functionals), general topology (injective spaces, function spaces, locally compact spaces, Stone duality), topological algebra (compact Hausdorff semilattices) and analysis (measure, integration, dynamical systems). Moreover, these applications are related - for example, Stone duality gives rise to a logic of observable properties of computational processes.

Invited speakers will be:

- Ulrich Berger (University of Wales Swansea)
- Thierry Coquand (Goeteborg University)
- Jimmie Lawson (Louisiana State University)
- John Longley (Edinburgh University)
- Dag Normann (University of Oslo)
- Prakash Panangaden (McGill University)
- Uday Reddy (Birmingham University)
- Thomas Streich (Darmstadt University)

Other participants are invited to submit an abstract through the workshop website (http://www.cs.bham.ac.uk/~wd6). Workshop organisers are Martin Escardo and Achim Jung. Partial grants are available thanks to support by LMS and EOARD. Further support has been applied for from EPSRC.

NEW EXECUTIVE DIRECTOR AT IMA

Mr David Youdan will take up the position of Executive Director at the Institute of Mathematics and its Applications on 1 July 2002, in succession to Dr Adrian Lepper. David is a Chartered Engineer, a Fellow of the Institution of Civil Engineers and a Fellow of the Hong Kong Institution of Engineers; he has had an extensive career in engineering and engineering management and a broad experience in management and commerce.

LAUNCH OF A BIOGRAPHY OF SOPHUS LIE

A reception was held on 29 May 2002 at the splendid Residence in Palace Green, London W8 of the Royal Norwegian Ambassador and Mrs Brautaset at which Arild Stubhaug spoke about the life of Sophus Lie and about his biography, 'The Mathematician Sophus Lie: It was the Audacity of my Thinking' (published by Springer). Several members and staff of the LMS were invited and had the pleasure of hearing a speech of welcome from the Ambassador as well as Arild Stubhaug's fascinating address.

J.T. Stuart
President

COLLINGWOOD MEMORIAL PRIZE

The 2002 Collingwood Memorial Prize has been awarded to David P. Bourne, Collingwood College, who will study for a PhD in Mathematics at the University of Maryland, College Park. The Collingwood Memorial Prize, established in memory of Sir Edward Collingwood FRS, President of the Society 1969-1970, is awarded to a final-year mathematics student at the University of Durham who intends to continue to a higher degree in mathematics at Durham or any other university.

LONDON MATHEMATICAL SOCIETY

BRITISH SOCIETY FOR THE HISTORY OF MATHEMATICS

Joint Meeting

THE FOUR-COLOUR PROBLEM

Wednesday 23 October 2002, London

Preliminary Announcement

Robin Wilson: ***The four-colour problem: 1852-1940***
[from Augustus De Morgan's letter to Henri Lebesgue's paper of 1940]

Kenneth Appel and Wolfgang Haken: ***Solving the four-colour problem***
[from Heesch's contributions to the mathematical and computational aspects of the Appel-Haken solution]

Dan Archdeacon: ***From the Heawood conjecture to topological graph theory***
[from the Ringel-Youngs solution of the Heawood conjecture to current developments in topological graph theory]

Robin Thomas: ***The four-colour theorem and beyond***
[covering the Robertson-Seymour-Sanders-Thomas proof, recent progress on some generalisations, and equivalent formulations inside and outside graph theory]

A reception and dinner will be held after the meeting.

There are limited funds available to contribute in part to the expenses of members of the Society or research students to attend the meeting. Requests for support may be addressed to the Programme Secretary, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (e-mail: grants@lms.ac.uk). Requests should include an estimate of expenses and a very brief *curriculum vitae*; research students should include brief letters of endorsement from their supervisors.

Enquiries may be addressed to Susan Oakes
(tel: 020 7637 3686, e-mail: oakes@lms.ac.uk)

FURTHER MATHEMATICS: USE IT OR LOSE IT

There was a time when anyone who wanted to read mathematics at university was expected to take double Mathematics at A-level. Nowadays, hardly any departments require it. Most couldn't fill their places if they did. Even if they could, it would mean excluding any student who had attended one of the many schools and colleges that no longer teach Further Mathematics.

Most of us would still prefer our first year students to have taken Further Mathematics, even if we can't count on it in designing our courses. But it's under pressure from many directions. Nationally, there are problems like the funding system for FE Colleges and the new entrance requirements of medical schools. At local level, students have to be convinced that it is worth taking, and Heads have to be convinced that it is worth putting on.

There are still a lot of teachers who are keen to teach Further Mathematics, and they need some support. You'd have thought it was obvious that we'd prefer students to have taken double mathematics, but if we don't keep saying so, those in charge will assume that we don't really care one way or the other. And we mustn't let our concern not to put off those students who are taking only single Mathematics be interpreted as meaning that we don't think they're missing anything.

If your Department does prefer students to have taken Further Mathematics, you should make a point of saying so whenever you get the opportunity, and you should state in your prospectus that Further Mathematics is "preferred" or "recommended". You should be able to find a form of words that won't discourage good applicants with only single Mathematics but will make it clear that anyone who intends to read mathematics at university would be well advised to take Further Mathematics if they possibly can.

Peter Saunders
King's College, London

RECORDS OF PROCEEDINGS AT MEETINGS

REGIONAL ORDINARY MEETING

held on *Wednesday 27 February 2002* at the University of Birmingham. About 70 members and visitors were present for all or part of the meeting.

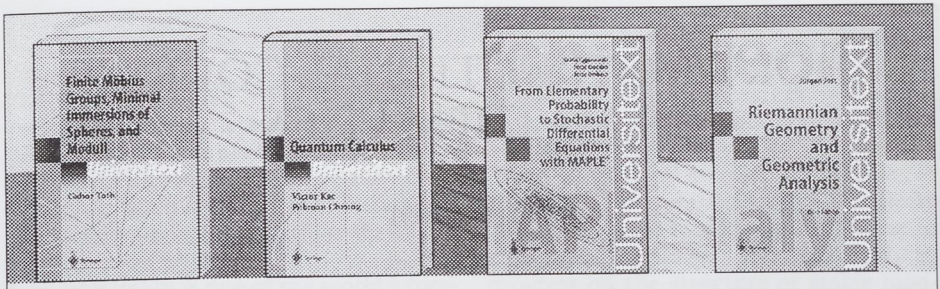
The meeting began at 2:30 pm, with Professor J.T. STUART, FRS, in the Chair. Four people were elected to Ordinary Membership: R.G.M. Brummelhuis, X.D. Li, P. Muldowney, J.R. Wright; and one person was elected to Associate Membership: A.B. Hayward.

G.R. Robinson introduced a lecture given by P.M. Neumann on 'Infinite Jordan Groups'.

R.T. Curtis introduced a lecture given by A.D. Gardiner on 'Why should the mathematical community care about Olympiads?'

After tea, J.S. Wilson introduced a lecture given by A.J. Macintyre on 'Prospects for model theory'.

A reception was held in the Physics Bridge. This was followed by a dinner at Staff House during which two prizes were given for best Postgraduate Posters.



G. Toth

Finite Möbius Groups, Minimal Immersions of Spheres, and Moduli

In trying to make this monograph accessible not just to research mathematicians but also to graduate students, the author included sizeable pieces of material from upper level undergraduate courses as well as a valuable selection of exercises at the end of each chapter.

2002. XVI, 317 pp. (Universitext) Hardcover
€ 74,95; £ 52,50; sFr 124,– ISBN 0-387-95323-X

V. Kac, P. Cheung

Quantum Calculus

This book is written at the level of a first course in calculus and linear algebra and is aimed at undergraduate and beginning graduate students in mathematics, computer science, and physics.

2002. IX, 112 pp. (Universitext) Softcover
€ 34,95; £ 24,50; sFr 58,– ISBN 0-387-95341-8

C.C. Pugh

Real Mathematical Analysis

In this new introduction to undergraduate real analysis the author takes a different approach from past studies of the subject, by introducing the importance of pictures in mathematics and hard problems.

2002. XI, 437 pp. 133 figs. (Undergraduate Texts in Mathematics) Hardcover **€ 59,95**; £ 42,–; sFr 99,50 ISBN 0-387-95297-7

K. Matsuki

Introduction to the Mori Program

2002. XXII, 478 pp. 61 figs. (Universitext) Hardcover
€ 74,95; £ 52,50; sFr 124,– ISBN 0-387-98465-8

S. Cyganowski, P. Kloeden, J. Ombach

From Elementary Probability to Stochastic Differential Equations with MAPLE

The book is based on measure theory which is introduced as smoothly as possible. It provides an overview and intuitive background for more advanced studies as well as some practical skills in the use of MAPLE.

2002. XVI, 310 pp. (Universitext) Softcover **€ 39,95**; £ 28,–; sFr 66,50 ISBN 3-540-42666-3

J. Jost

Riemannian Geometry and Geometric Analysis

From the reviews of the first and second editions:
"...a very readable introduction to Riemannian geometry and geometric analysis. The author focuses on using analytic methods in the study of some fundamental theorems in Riemannian geometry..."
Mathematical Reviews

3rd ed. 2002. XIII, 532 pp. (Universitext) Softcover
€ 44,95; £ 31,50; sFr 74,50 ISBN 3-540-42627-2

A. Martinez

An Introduction to Semiclassical and Microlocal Analysis

This book provides a systematic and extremely useful presentation of the theory in its traditional setting motivated by quantum mechanics.

2002. VIII, 190 pp. (Universitext) Hardcover
€ 69,95; £ 49,–; sFr 116,– ISBN 0-387-95344-2

A. Deitmar

A First Course in Harmonic Analysis

2002. XI, 151 pp. (Universitext) Hardcover
€ 44,95; £ 31,50; sFr 74,50 ISBN 0-387-95375-2

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SHORT INSTRUCTIONAL COURSES IN MATHEMATICS

Facilitator

The London Mathematical Society's present contract with EPSRC to run Short Courses comes to an end this year, and the Society is at present negotiating a new contract with EPSRC to run 15 week-long Short Courses in the period 1 January 2003 to 30 April 2006. It is expected that the Society will appoint a Facilitator for this, to succeed Dr Alan Pears, who has served as Facilitator for the period of the present contract.

The role of the Facilitator shall be to:

a) consult widely and bring forward suggestions of topics for Courses to the Committee;
b) recruit Organisers for Courses, advising on the preparation of the scope and syllabus of the course;
c) oversee the production and dissemination of publicity material and the procedure for applications and registrations of participants;
d) advise on the budget of each Course, ensuring that the terms of the contract with EPSRC are met;
e) assist the Course Organiser of a Course in the preparation of the final report and financial statement;
f) advise and support Course Organisers in matters relating to Courses;
g) report formally to the Executive Secretary of the London Mathematical Society.

In doing so, the Facilitator will work with the staff of De Morgan House, using procedures set up by Alan Pears, and will work in consultation with, and under the direction of, the Research Meetings Committee, and its Chair, Professor A.J. Scholl.

It is expected that the post will be one-fifth time (one day per week), although there may be the possibility of further work on other duties, and will be paid at an appropriate point on the Academic Salary Scale. If you are interested, please consult Professor Scholl in the first instance: he can provide further information.

Professor A.J. Scholl, DPMMS, Centre for Mathematical Sciences,
Wilberforce Road, Cambridge CB3 0WB.
E-mail: a.j.scholl@dpmms.cam.ac.uk; Tel: 01223 765 889.

LMS PRIZES 2002

Polya Prize

PROFESSOR NIGEL HITCHIN FRS of Oxford University is awarded the Polya Prize for his fundamental and enormously influential contributions to geometry, as well as for his wider contributions to the development of mathematics and mathematical physics.

Nigel Hitchin is one of the world's foremost geometers, and beyond that he has exercised a major influence on the shape of theoretical physics. For over 20 years Nigel Hitchin has been producing a remarkable succession of highly original and influential papers in differential geometry. The range of topics is extensive: minimal surfaces, integrable systems, moduli spaces, symplectic and Kähler geometry, Einstein metrics, hyper-Kähler manifolds. He has used a broad range of techniques, many involving novel interactions with complex algebraic geometry, and has produced definitive results.

One masterpiece is his work on the self-duality equations and his identification of the "Hitchin moduli space" of holomorphic bundles equipped with a Higgs field. This has provided the basis for many developments in the theory of integrable systems. The space has been central in recent years in the work of Beilinson and Drinfeld on Langlands duality in representation theory. In mathematical physics, Hitchin's work on monopoles and spectral curves have been essential to implementing Manton's ideas about slow-motion scattering. His research continues at full pace.

Hitchin was President of the Society from 1994 to 1996. He has, with quiet efficiency, played a significant role in ensuring the healthy development of mathematics in this country and abroad.

Senior Berwick Prize

PROFESSOR JEREMY RICKARD of Bristol University is awarded the Senior Berwick Prize for his two papers:

1. Idempotent modules in the stable category, *JLMS* 56(1997),149-170;
2. Splendid equivalences: derived categories and permutation modules, *PLMS* 72(1996), 331-358.

Paper 1 develops a fruitful analogue, in the stable module category of a finite group, of a basic localization technique in algebraic topology, and has led to progress on the structure of stable module categories. Paper 2 relates to famous conjectures of Broué on equivalence of categories for derived categories for block algebras of finite groups, and has proved fundamental for the theory of blocks with abelian defect groups.

Naylor Prize

PROFESSOR MARK DAVIS of Imperial College is awarded the Naylor Prize for excellent pioneering contributions to stochastic analysis, stochastic control and filtering theory and more recently to mathematical finance. His expository work is of enormous influence in introducing modern mathematical methods into these areas.

In his earliest work, Mark Davis gave a rigorous foundation for stochastic optimal control, and was the first to introduce martingale techniques into stochastic control; these techniques were central to subsequent developments and extremely novel at the time.

Mark Davis contributed to the theory of robust non-linear filtering, giving a representation of the nonlinear filter in a form which is uniformly continuous in terms of the observation. This result is important in theory and in practice. He derived a separation principle showing that the optimal control problem can be decomposed into the optimal filtering of the observations together with a suitably designed control.

Professor Davis introduced the notion of piecewise-deterministic Markov processes and developed the stochastic calculus and the optimal control theory for such processes. These results are useful in inventory control and queuing sys-

tems.

In his position as Director of the Research Unit of a leading international investment bank, Davis became one of the most respected and authoritative figures applying stochastic analysis to mathematical finance, fashioning the mathematical tools finance uses.

Professor Davis is a distinguished scientist who has worked on problems of wide applicability, and made fundamental contributions which he has elegantly conveyed in lectures, articles and books.

Whitehead Prizes

DR KEVIN BUZZARD of Imperial College is awarded a Whitehead Prize for his distinguished work in number theory.

Dr Buzzard has several main achievements:

(i) he has given a basically complete description of the possible levels for a modular mod l Galois representation;

(ii) he has given a Galois-theoretic criterion for analytically continuing a p-adic modular form to a classical modular form;

(iii) he has shown that the Coleman-Mazur theory of p-adic families of modular forms could be de-mystified by short elementary arguments using group cohomology; and

(iv) he has shown how to compute the slopes of the p-Hecke operator on spaces of modular forms.

DR ALESSIO CORTI of Cambridge University is awarded a Whitehead Prize for his fundamental contributions to the geometry of 3-folds. He has carried on Mori's famous method of minimal models, and refined it to allow classification of varieties which are roughly similar to projective space. Building on previous work on Fano varieties by the Russian school of Iskovskikh and Manin, Corti introduced techniques and a conceptual framework for systematic study of the notion of birational rigidity. He is internationally recognised as having made major contributions to the Sarkisov program, and to the classification program for Fano varieties. His influential foreword, jointly with Miles Reid, to the London Mathematical Society Lecture Notes on Explicit birational geometry of 3-folds outlines the subject of explicit birational geometry, going from the abstract notions of the Mori program towards tractable lists of terminal singularities, divisorial contractions, flips, Fano 3-folds and the like. He is distinguished both for his technical contributions to fundamental classifications, and for his vision of the most illuminating methods for further progress.

DR MARIANNA CSÖRNYEI of University College London is awarded a Whitehead Prize. She has produced important and impressive results in a wide range of directions, from real analysis to geometric measure theory, to geometric nonlinear functional analysis. Among these, both for significance and originality, one could cite her work on the equivalence of different notions of null sets in infinite dimensional spaces, the construction of a Lipschitz quotient between space of different - finite - dimensions which does not satisfy Gorelik's principle, and a remarkable proof that given a locally-finite measure on the plane, every set in the plane can be covered by a union of lines with the same measure, a far-reaching extension of a result of R.O. Davies.

DR CONSTANTIN TELEMAN of Cambridge University is awarded a Whitehead prize for his important contributions to the representation theory of infinite dimensional groups, especially loop groups. His work has used a wide variety of techniques from analysis, algebra and topology and has led to the resolution of several much-studied conjectures.

He discovered a powerful analogue of the Borel-Weil-Bott theorem valid for loop groups, thus taking an important further step in the development of the representation theory of loop groups. This fundamental result has many conse-

quences including a beautiful treatment of the Verlinde conjecture about loop group representations and the solution of a conjecture of Bott that holomorphic induction takes tensor products to fusion products.

His work on geometric quantisation implies a strong version of the 'quantisation commutes with reduction' conjecture of V. Guillemin and S. Sternberg.

In joint papers with S. Fishel and I. Grojnowski he has studied the cohomology of the Lie algebra of vector fields on C which vanish to high order at a point. A consequence is a proof of the "strong Macdonald conjectures".

Very recently, together with D. Freed and M. Hopkins, Teleman has given a very surprising description of the Verlinde representation ring of the loop group of a compact group G in terms of the twisted equivariant K-theory of G.

Teleman has uncovered surprising connections between mathematical objects previously not known to be related and has found elegant proofs of a number of outstanding conjectures.

MATHEMATICS-IN-MEDICINE STUDY GROUP 2002

The Study Group 2002 will be held at the University of Nottingham, Centre for Mathematical Medicine on 9-13 September 2002. The study group aims to find new ways to solve medical problems through the use of mathematical models. The participation of those interested in applying their mathematical skills to medical problems (whether or not they have previous experience in the area) is warmly invited and funding is available for a number (including for research students). A registration form and other details will be available at:http://www.maths.nottingham.ac.uk/Cmm/MMSG2002/intro.htm or from Dr Helen Byrne (helen.byrne@nottingham.ac.uk) or Professor John King (john.king@not tingham.ac.uk).

SIR RONALD FISHER

On 17 May 2002 a commemorative blue plaque was unveiled at Inverforth House, North End Way, Hampstead, where Ronald Fisher lived for several years early in his life, the mounting of the plaque having been agreed by English Heritage following representations from the Royal Statistical Society.

After an introduction by a representative of English Heritage, a fine appreciation of Fisher and his work was given by Professor Peter Green, President of the RSS, in a somewhat quieter location down the road from Inverforth House. The unveiling was performed by Ronald Fisher's youngest daughter in the presence of his eldest daughter, his surviving son and other members of the family. A large group of statisticians and mathematicians was present also, including representatives of the LMS and the IMA.

A lunch was held at the RSS Headquarters in Errol Street, and was followed by guest speakers Anthony Edwards, Alan Grafen and Michael Healy during the afternoon. A dinner to celebrate the life and work of Sir Ronald Fisher was held in the evening.

J.T. Stuart
President

CHALLENGE

On the occasion of the 40th anniversary of his membership with the London Mathematical Society, A.A. Mullin proposes the following difficult challenge: Prove that there exist infinitely many perfect squares that exceed an odd bi-composite by 1. (Recall that a bi-composite is the product of two distinct primes.) Results may be sent to him at: 172 Manningham Drive, Madison, AL 35758, USA.

[The Editors are glad to offer a bottle of champagne for a complete solution to this problem: answers, preferably in the margin, to De Morgan House.]

THE SIXTH FRAMEWORK PROGRAMME

(A condensed version of an article by Luc Lemaire in the Newsletter of the European Mathematical Society.)

The Sixth Framework Programme of the European Commission will start at the end of 2002 and run until 2006. The following are some of its salient features as they affect mathematicians.

"Training and Mobility" (Framework 5) becomes "Structuring the European Research Area". Within this lie the "Marie Curie Research networks" which replace the Research or Research Training networks. In more detail, we should note the following sections:

Human resources and mobility

- Host-driven actions:
  Marie Curie Research Training Networks, Marie Curie host fellowships for early stage research training, Marie Curie host fellowships for the transfer of knowledge (allowing for invitation of high-level researchers), Marie Curie conferences and training courses (funding of conferences and of the participation therein of young scientists).
- Individual-driven actions:
  Marie Curie intra-European fellowships, Marie Curie outgoing international fellowship (allowing young scientists from the EU and associated countries to work in third countries - i.e. countries outside EU and associated states - with a mandatory second phase in Europe), Marie Curie incoming international fellowships (to attract top-class researchers from third countries).
- Excellence promotion and recognition:
  Grants, prizes and Marie Curie chairs (to attract top-class researchers for a period of three years).
- Return and reintegration mechanisms:
  Directed at researchers having completed a Marie Curie fellowship, or having spent at least five years outside Europe.

A programme on raising awareness of science is included in Science and Society. There is a new opening in this programme, not only for the associated states of the EU but for "third countries", though specific co-operation activities often exclude mathematical development, being restricted to urgent problems of food safety, water pollution, health and resources. Still, a specific item for Russia and the CIS countries includes "stabilisation of R & D potential", certainly a crucial point for mathematics.

The calls for proposals for all of the above should be issued at the end of 2002 or early 2003.

A new feature of Framework 6, which should not be ignored by us and which may be of great interest, especially to applied mathematicians, is the section called "Integrating and Strengthening the European Research Area". This component has a budget about five times that of "Structuring the ERA" and aims mostly at seven priority themes, namely :

1.1.1. Genomics and biotechnology of health
1.1.2. Information Society technologies
1.1.3. Nanotechnologies and nanosciences, knowledge-based multifunctional materials, and new production processes and devices
1.1.4. Aeronautics and space
1.1.5. Food quality and safety
1.1.6. Sustainable development, global change and ecosystems
1.1.7. Citizens and governance in a knowledge-based society

There is also a mention of a wider field of research in which mathematics could play a role, namely:

1.2.1. Supporting policies and anticipating scientific and technological needs.

Now, where could mathematics fit in? Certainly, any application in an EC pro-

gramme must fit the terms and rules of that programme - so this is not the place to obtain funding for mathematics in general. However, different branches of mathematics have a role to play in the seven priority themes. For the groups of mathematicians working in these areas, the strategy must be to contact the networks which are already in the process of building up to see how they could be integrated in interdisciplinary projects. Clearly, the building up of the networks must start from the theme (e.g. genomics) and not from sciences like biology, informatics, chemistry or mathematics.

Priority 1.2.1. (anticipating scientific needs), sometimes nicknamed the eighth priority, could open a new avenue for some mathematicians. Why not, for instance, propose a network of mathematics modelling, which would come as support for the seven main priorities? Such an initiative might be taken by an appropriate group of modelling centres.

All-in-all, there are opportunities for mathematicians in the sixth framework programme. This hasn't happened without effort, but that's another story!

Luc Lemaire

THE FERRAN SUNYER I BALAGUER PRIZE

The 2002 Ferran Sunyar i Balaguer prize has been awarded to Alexander Lubotzky, Hebrew University of Jerusalem and Dan Segal, Oxford University, for their joint monograph *Subgroup Growth* and to André Unterberger, University of Reims, for his monograph *Automorphic Pseudodifferential Analysis and Higher-Level Weyl Calculi.*

Each year in honour of the memory of Ferran Sunyer i Balaguer, the Institut d'Estudis Catalans awards an international mathematical research prize bearing his name. This prize was awarded for the first time in April 1993. The competition is open to all mathematicians, subject to the following conditions:

- The prize will be awarded for a mathematical monograph of an expository nature presenting the latest developments in an active area of research in Mathematics, in which the applicant has made important contributions.
- The monograph must be original, written in English, and of at least 150 pages. The monograph must not be subject to any previous copyright agreement. In exceptional cases, manuscripts in other languages may be considered.
- The prize, amounting to 10,000 euros, is provided by the Ferran Sunyer i Balaguer Foundation. The winning monograph will be published in Birkhäuser Verlag's series "Progress in Mathematics", subject to the usual regulations concerning copyright and author's rights.
- The submission of a monograph implies the acceptance of all of the above conditions.
- The name of the prize-winner will be announced in Barcelona in April 2003.

The winner of the prize will be proposed by a Scientific Committee consisting of: H. Bass (University of Michigan), A. Córdoba (Universidad Autónoma de Madrid), W. Dicks (Universitat Autónoma de Barcelona) P. Malliavin (Université de Paris VI) and J. Oesterlé (Institut de Mathématiques de Jussieu).

Monographs should preferably be typeset in TeX. Authors should send a hard copy of the manuscript and two disks, one with the DVI file and one with the PS file (PostScript), and enclosing an accompanying letter to the Ferran Sunyer i Balaguer Foundation. Submissions should be sent before **1 December 2002** to the following address: Centre de Recerca Matemàtica (IEC), Fundació Ferran Sunyer i Balaguer, Apartat 50, E-08913 Bellaterra, Spain (e-mail: ffsb@iec.es). For further information on the Ferran Sunyer i Balaguer Foundation, visit the website (http://www.crm.es/info/ffsb.htm).

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Global Praise for *The Honors Class: Hilbert's Problems and Their Solvers*

"**Félicitations** à l'auteur pour avoir réuni dans un texte très agréable à lire une telle masse d'informations intéressantes, souvent peu connues et difficiles à trouver".

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– Yum-Tong Siu – Harvard University, Cambridge, MA

„**[Yandell] liefert** im ausführlichen intellektuellen wie politischen und persönlichen Porträt des großen sowjetischen Mathematikers Andreij Nikolajewitsch Kolmogorov ... ein dichtes, gelungenes Zeit- und Denkbild, das seinem Buch einen angenehm unpompösen, überzeugenden Schlußakkord beschert".

– Dietmar Dath – FAZ, Germany

"**Книга** написана очень живо и читается с увлечением. Она поможет многим понять, что такое занятия математикой, как математики живут, и как на них влияет их профессия."

– Yuri Manin – Max-Planck Institut für Mathematik, Bonn, Germany

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The Honors Class; Hilbert's Problem and Their Solvers by Benjamin H. Yandell, A.K. Peters, 2002, 496 pp, US $39.00, £28.00, Euro 46.00, ISBN 1-56881-1410-1

The key to enjoying this book is to realise that the title is correct. It is about the honours class, the people who solved, or in some significant way contributed to the solution of, one of Hilbert's 23 problems. There are fascinating accounts here of the lives of a number of the 20th Century's greatest mathematicians, notably but by no means exclusively Kurt Gödel, Paul Cohen, Julia Robinson. Yuri Matjasevich, Dehn, Gleason, Siegel, Gelfond, Takagi, Emil Artin, Poincaré, and Kolmogorov. The lengthy discussion of Kolmogorov's life and work is among the best, but it is typical in focussing on the man and his contributions, and not confining itself to his work on Hilbert problems alone (considerable though that was). When he has used written sources, Yandell has looked around with care (perhaps more could have been done with Poincaré) and he has been particularly sensitive to the quality of information about mathematicians from the former Soviet Union, which has improved markedly in recent years. But a welcome and novel feature of the book is that he has talked at length with a number of the mathematicians involved, and in this way learned a lot about their lives, their attraction to this or that part of mathematics, and their memories of the personalities involved.

The problems and their solutions are also described, and often very well. There is almost no problem in the list that requires less than a graduate course for its proper understanding, so a lower bound for a full treatment of Hilbert's problems is 23 volumes (let us ignore the fact that Hilbert wrapped up several problems in one on some occasions). If one adds that, outside the honours class itself, few mathematicians can feel equally comfortable with the different techniques involved in the different domains of mathematics, it is clear that both size and complexity are against the author and his readers here. Yandell's solution has been to try and make the central difficulty clear, sometimes to indicate the techniques involved, and then to try and explain what the solution actually means.

This works very well with the first few problems. Perhaps because Yandell lives in Pasadena and has relatively easy access to the community of Californian logicians including Martin Davis and Paul Cohen, he gives a good account of forcing, and a fine insight into Julia Robinson's approach to the tenth problem. It is bound up with the social history in a most illuminating way. But there are other good examples along the way: a nice sketch of the argument that Liouville originally gave for the existence of transcendental numbers is a case in point. Sometimes Yandell pitches his tents too far from the summits, in the hope that the tourist can at least appreciate something of the view. The reader who needs to be reminded what a prime number is will not get close to understanding the Riemann zeta function and the 8th problem, nor will someone who needs a quick course in high school algebra get close to the fourteenth problem. This is not a criticism. There are whole books on the Riemann zeta function which presume a fair amount of familiarity with undergraduate complex function theory. Yandell wants to reach a more elementary audience, and I think he is unquestionably right.

Over the years, the various Hilbert problems have led different lives. The strong start to this book reflects the vigorous life of the foundations of mathematics in the 20th Century, and the sense we have that Hilbert's problems in this area have had definitive answers. The five last problems are in analysis, most but not all in differential equations. The consensus is that this is a highly technical area in which enormous progress has

been made, perhaps to the point of leaving Hilbert behind altogether. Several of these problems get treated rather abruptly. And some, numbers 14 to 18, are often thought to be rather obscure, which may be why they are dispatched in the shortest chapter in the book. Yandell's compromises are most painful here, but after all, the modern consensus, if there is one, is that these priorities are the views of the members of the honours class. However, one misses a sense of what made Hilbert choose these problems, and how and why some of them are more significant than the treatment here might suggest.

Quite deliberately, the book is impressionistic. There are occasions when some crucial distinctions are missing (first versus second order logic, for example) and a few technical terms fly by undefined (homology manifold, for example). I invite readers who find this sort of thing inexcusable to write politely to the author pointing out what has to be done to put matters right; the book merits a second edition. But any young mathematician who wants to know what the leading figures in the mathematics community were like in the 20th Century now has an excellent chance to find out, and to find out what is so exciting about the Hilbert problems and indeed mathematics itself.

Jeremy Gray
Open University

COMPUTATIONAL, STATISTICAL AND MATHEMATICAL MODELLING IN BIOLOGY

A summer school on Computational, Statistical and Mathematical Modelling in Biology will be held at the University of Glasgow on 2-5 September and will focus on a variety of modelling techniques developed in the areas of computing science, statistics and mathematics that are proving to be useful in the context of the life sciences. It will stimulate new cross-disciplinary interactions between mathematicians, statisticians, computing scientists, and biologists. Students will find out about open research questions and challenges in the application of mathematical techniques to biology via participation in lectures, tutorials, computer lab. sessions, poster presentations and research surgeries led by the presenters.

The topics include: Mathematical modelling of biological systems, Hidden Markov models for DNA sequence analysis, Algorithms for genome and phylogeny analysis, 3D image reconstruction techniques in biomedical context.

The organisers for the event are: Dr Ela Hunt (Glasgow), Professor Nick Hill (Glasgow), Dr Roderic Page (Glasgow), Dr Ernst Wit (Glasgow). Further information can be found on the website (http://www.bioinf.gla.ac.uk). The Summer School is funded by the London Mathematical Society, the EPSRC and the University of Glasgow.

RECENT ADVANCES IN PROBABILITY AND STATISTICS WORKSHOP

A one-day workshop on Recent Advances in Probability and Statistics will be held at the Department of Mathematical Sciences, Brunel University of West London on 17 December 2002.

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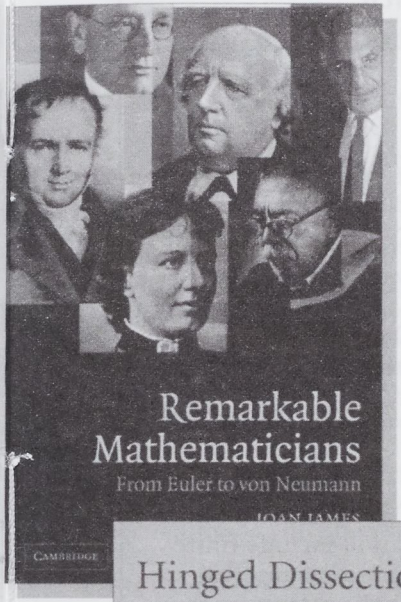

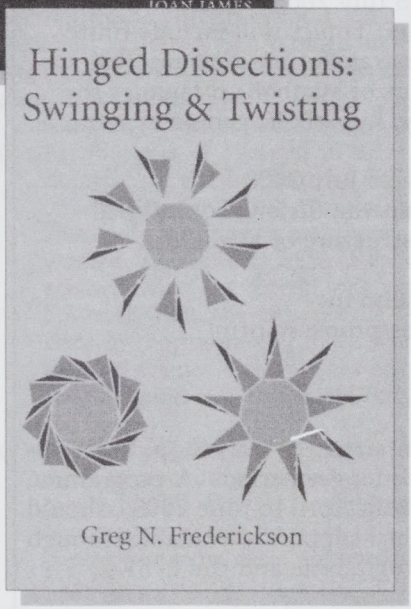

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WARWICK SYMPOSIUM 2002/3

Geometric and Probabilistic Aspects of Dynamical Systems

Organisers: Adam Epstein, Oleg Kozlovski, Omri Sarig, Sebastian van Strien, Peter Walters.

Activities will take place over the whole year and there will be a number of Workshops held in the university vacations as follows.

- ***Real and Complex One-dimensional Dynamics***: 9-13 December 2002
  Organised by Oleg Kozlovski and Sebastian van Strien.

- ***Holomorphic Dynamics***: 7-12 April 2003
  Organised by Adam Epstein.

- ***Symbolic Dynamics and Ergodic Theory***: 7-18 July 2003
  Organised by Omri Sarig and Peter Walters. Topics will include finite and countable state Markov systems, adic-transformations, interval exchange transformations, and applications of symbolic dynamics to geometric measure theory, number theory, hyperbolic geometry, etc.

- ***Geometric Aspects of Dynamical Systems***: 21-25 July 2003
  Organised by Oleg Kozlovski and Sebastian van Strien. Topics will include non-hyperbolic systems, and the structure of attractors.

More information on the meeting can be found in:
http://www.maths.warwick.ac.uk/dynamics/propsum.html

Or e-mail: dynsym@maths.warwick.ac.uk

We welcome people to come for longer visits than a workshop. PhD students are particularly welcome to attend for longer periods. A programme of mini courses on a wide range of topics - from April to June 2003 - should make such a long visit very attractive. Financial support is available through Marie Curie Fellowships, the ESF Prodyn programme and the EPSRC.

The Symposium is jointly funded by the EPSRC and the ESF programme PRODYN.

WOMEN IN SCIENCE, ENGINEERING AND TECHNOLOGY
Breakfast Meeting on the Greenfield Report

Following a request from Patricia Hewitt, MP, Secretary of State for Trade and Industry, Baroness Susan Greenfield, CBE, Director of the Royal Institution, is conducting an enquiry into 'Women in Science, Engineering and Technology' (SET). Her report is due to be with the Secretary of State later in June 2002. Thus a consultative meeting was held at the RI on 31 May 2002 to which the President of the LMS was invited together with some 30 others (half women, half men), including representatives from the Institute of Biology, the Royal Society of Chemistry, the Institute of Physics, the British Computer Society, the Royal Society and the Royal Academy of Engineering.

Initial presentations were made by Susan Greenfield, by Dr Jan Peters (Rapporteur for the Meeting) on an 'Overview of women in SET' and Dr Nancy Lane (President of the Institute of Biology) on 'Women in Biology: the issues and concerns'. Brief reports on their Societies' activities on 'Women in SET' were then given by most of the others present, including myself.

Among important issues arising were:

(i) Attributions of Women in SET; for example, in the Institute of Biology, 65% of students are women, only 27% of ordinary members are women, even lower, 5.9% of Fellows are women. The point was made, however, that the situation is transient in that more and more women take up science as time goes on; the above figures are therefore likely to change;

(ii) Maternity and child care; there is a need to encourage more women to return to SET when their children are 'more mature'; one does see this happening but more cases are needed, as happened recently in a fine mathematics case that came before the Science Scholarships Committee of the Royal Commission for the Exhibition of 1851; [the Daphne Jackson Scheme does not yet have similar achievements, at least in mathematics, which the LMS partly funds]; the need for a child care allowance as part of a fellowship 'package' was suggested;

(iii) There is a need for support for the mentoring of young students and fellows perhaps (in the case of women) by suitable female role models;

(iv) Women wish to, and should, succeed on merit, not least in progressing to higher positions;

(v) Continuing professional development (CPD) is important, really in reference to (iii) above.

The LMS activities included:

(a) An active Committee for Women in Mathematics and the regular 'Women in Mathematics' Meeting held at De Morgan House in January;

(b) The Mary Cartwright annual lecture;

(c) Financial support for the Daphne Jackson programme;

(d) Among this year's LMS prizewinners, the youngest is a 26 year old woman.

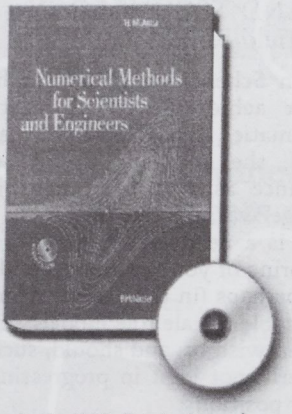
(e) One of this year's LMS Popular Lecturers is a woman.

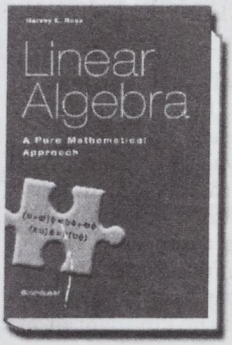
Also of a mathematical nature, it was reported that the Royal Society has elected a woman among its 4 (or 5) mathematicians in each of the last two years.

The LMS President (in a different incarnation) said that the Science Scholarship Committee of the Royal Commission for the Exhibition of 1851 recently chose a list of twelve excellent fellows, two being mathematicians, and six (ie 50%) being women! This 50% of women is hoped to be a real breakthrough.

In the final part of the Meeting, Dr Gill Samuels (of Pfizer) summarised her understanding of our conclusions. It was suggested also that meetings of this kind might be held regularly, a proposal that was endorsed enthusiastically from the Chair by Susan Greenfield.

J.T. Stuart
LMS President





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LMS PROGRAMME AND CONFERENCE FUND

The Programme and Conference Fund is used to give financial support for mathematical research in the UK. The fund is administered by the LMS Programme Committee. Programme Committee distributes as grants some of the funds that the Society receives from its investments and publishing activities. This is one of the mechanisms through which the Society achieves its central purpose, namely to 'promote and extend mathematical knowledge'. The Society operates as a charity and does not receive any public funding. Thus Programme Committee has different opportunities and works within a different regulatory framework from other funding bodies, such as the EPSRC.

Grants are made under six main headings which are described below. In general any mathematician working in the UK is eligible for a grant, but if an applicant is not a member then the application must be countersigned by an LMS member. For Scheme 4, only LMS members working in the UK are eligible.

Applications should be sent to the Programme Secretary at the Society's Office (London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS). Applications cannot usually be considered between mid-June and mid-September. Queries regarding applications can be addressed to Stephen Huggett (tel: 01752 232710, e-mail: s.huggett@plymouth.ac.uk) or Ben Garling (tel: 020 7291 9970, e-mail: garling@lms.ac.uk), who will be pleased to discuss proposals informally with potential applicants and give advice on the submission of an application. Normally, grants must be claimed not earlier than 3 months before, and not later than 3 months after, the event for which the grant is made. Grants must also be claimed in a specified financial year from 1 September to 31 August. Please state in your application in which year you intend to claim the grant.

Scheme 1 - Conference Grants

Grants are made to the organisers of conferences to be held in the United Kingdom. Programme Committee tends to give priority to the support of meetings where an LMS grant can be expected to make a significant contribution to the viability and success of the meeting. The Society expects that the meetings which it supports will be open to all members of the Society, and will only support a closed meeting if an exceptional case is made. Support of larger meetings of high quality is not ruled out but for such meetings an LMS grant will normally cover only a modest part of the total cost.

Brief academic and financial reports of the conference are expected. An application form may be obtained from the Society's Office, or may be downloaded as a LaTex file or a rich text file from the LMS website (www.lms.ac.uk). This sets out conditions under which grants are normally made and requests the information Programme Committee usually requires when considering an application.

The Society will not make grants to cover the cost of secretarial help, excessive room charges, publicity, or conference dinners and entertainment. It expects such items to be covered by contributions in kind from the host department, or by registration charges, or by income from other sources.

The Society wishes to support UK based research students, and applications should include details of the extent to which such research students will be involved in the conference. Up to £1000 may be awarded to support participants who are research students at UK universities. Support for these students is intended to contribute to travel, accommodation and subsistence costs, but not registration fees.

The Society also wishes to encourage overseas participants from the former Soviet Union, Eastern Europe and other countries within the scope of Scheme 5 (see below); a further £1000 may be

awarded to support such participants.

These additional grants are intended to help widen participation in a meeting. The committee does not expect that all of these sums will necessarily be spent; any surplus must be returned to the Society and may not be used for other purposes.

Applicants should note that, except for principal speakers, students at a UK university, and participants within the scope of Scheme 5, conference attendance will not be funded.

Potential applicants should note that the Society is reluctant to award grants to conferences which clash with the British Mathematical Colloquium. Applications are considered three times a year and the deadlines for submission are 31st January, 31st May and 31st August. The current upper limit for grants is £5000, the size of the grant to take into account the length of the conference, the number of UK participants and the number of research students taking part. The total grant, less the support for research students and 'Scheme 5' participants, shall not normally exceed £3000. (In this context 'research student' means 'research student of any nationality studying at a UK university'.)

Scheme 2 - Visitors

Some financial support is provided for visitors to the UK who give lectures in at least three separate institutions. Exceptionally, support under this scheme might be provided for a speaker addressing just one meeting which is regional in scope. The LMS contribution under this scheme is restricted to travel expenses (international and within the UK) up to a maximum of £1000. Host institutions are expected to meet the cost of accommodation and subsistence, and any other costs.

An application form may be obtained from the Society's Office, or may be downloaded as a rich text file from the LMS website (www.lms.ac.uk). This sets out conditions under which grants are normally made and requests the information Programme Committee usually requires when considering an application.

There are no specific deadlines but normally an application should be submitted at least three months before the date of the proposed visit to allow for consideration by the LMS Programme Committee and an announcement of the visit in the Society's Newsletter. Applications cannot usually be considered between mid-June and mid-September. All arrangements for a visit under this scheme are the responsibility of the applicant.

Scheme 3 - Support of Joint Research Groups

The scheme is to provide support for groups of mathematicians, working in at least three different locations in the United Kingdom, who have a common research interest, who wish to engage in collaborative activities and whose geographical locations are such that reasonably frequent regular meetings - several per year - are a realistic possibility.

A grant may be used for a variety of purposes associated with the group's activities, such as expenses for speakers at common seminars, travel for group members between institutions either for research visits, seminars or study groups, or support for TMR networks (on items ineligible for EU grants). The Society wishes to support research students and young postdoctoral mathematicians, and applications should indicate details of the extent to which they will be involved in the programme. No strict criteria will be laid down as to the use of the money but the Society reserves the right to judge whether the activities proposed in an application are appropriate for a grant.

Applications should be made by a nominated 'grant-holder' who will be responsible for the use of the grant, and countersigned by a 'supporter' from each of at least two further institutions. (If none of the applicants is a member of the Society, the application must be countersigned by a member of the Society.)

An application form may be obtained from the Society's Office, or may be downloaded as a LaTex file or a rich text file from the LMS website (www.lms.ac.uk). This sets out condi-

tions under which grants are normally made and requests the information Programme Committee usually requires when considering an application.

The grant is made for the academic year and the Society will expect to receive a report, both academic and financial. Applications for renewal, accompanied by full financial and academic reports, are considered at the September meeting (or at some later meeting between September and December) and will be considered along with fresh applications. Renewal of an application will be either:

a) renewal at some appropriate level, or
b) notice of termination at the end of the calendar year, in which case a sum equal to not more than one third of the previous year's grant can be claimed to cover actual expenditure in the residual period.

The maximum grant awarded is currently £1000; this is awarded where four meetings per year are held, or there is an equivalent level of activity. Meetings should be open, and have at least two formal talks on the programme.

Scheme 4 - Collaborative Small Grants

The aim of the scheme is to provide small grants to individual LMS members within the United Kingdom to help support a visit for collaborative research, either by the grantee to another institution within the U.K. or abroad, or by a named mathematician from within the U.K. or abroad to the home base of the grantee. The time available for joint research arising from the grant is expected to be several working days. The maximum sum available is £500 and, where necessary, grantees will have to cover further costs from other sources such as departmental or personal funds. The intention is to provide sufficient funds so that the call on other sources is held within manageable bounds.

Applications should be in the form of a letter setting out the proposed academic case for the visit, including a detailed description of a specific project, the standing of the collaborator and an estimate of costs. Whilst a reasonable level of detail is desirable, an application should not be excessively long, and the documentation should run to at most three A4 pages. Applicants should bear in mind that the purpose of the Scheme is to support specific projects with named collaborators and not, for example, simply to contribute to the costs of a sabbatical visit. A brief report on the use of the grant is expected: this should describe the academic outcome of the visit, together with very brief financial details.

Grants will be awarded three times annually, in September, February and June, with respective deadlines for applications of 31 August, 31 January and 31 May. Awards will be restricted to one in any given academic year (September to August) and in the event of over subscription in any particular round, applicants who received an award in the previous academic year will not be considered.

Scheme 5 - International Short Visits

This scheme, originally to support mathematics in the countries of the former Soviet Union has been extended to other countries. It now includes the countries of the former Soviet Union and Eastern Europe including the former Yugoslavia, China, India, Pakistan, Bangladesh, and the countries of Africa. It excludes the countries of Western Europe and North America and Australia. The status of other countries will be determined by Programme Committee case by case. For visits to Britain, the maximum grant shall be £50 a day for accommodation and subsistence (which may be spent according to the formula: actual accommodation costs up to £35 per day plus £15 per day for other subsistence costs), up to a maximum of £1400, and up to £500 for travel. For visits from Britain, the maximum grant is £1200.

Success of an application will depend mainly on the likelihood of potential benefit to mathematics in the country concerned. Grants will not be made solely for attendance at conferences. Where a visit to or from the UK includes a conference,

it should also include other academic activities which in themselves would justify the grant, and should be for a total period of not less than 14 days. For visits to the UK, any expenses during the period of a conference should be met by the conference organisers (see `Conference Grants' above).

Applications for a grant under this scheme should be made by mathematicians at UK institutions, both for visits to the UK and for visits to the countries concerned. An application form may be obtained from the Society's Office, or may be downloaded as a rich text file from the LMS website (www.lms.ac.uk). This sets out conditions under which grants are normally made and requests the information Programme Committee usually requires when considering an application.

There are no specific deadlines but normally an application should be submitted at least three months before the date of the proposed visit to allow for consideration by the LMS Programme Committee and, in the case of visits to the UK, an announcement of the visit in the Society's Newsletter. Applications cannot usually be considered between mid-June and mid-September. All arrangements for a visit under this scheme are the responsibility of the applicant.

Scheme 6 - Connectivity Grants

Up to £500 may be awarded towards the cost of exploring potential new collaborations between mathematicians and non-mathematicians on new applications of mathematics. The use of the grants is not restricted but might include the costs of a small-scale meeting to identify problems or travel costs to bring in external experts. The intention is to help the applicants do the preparatory work prior to a larger scale application to EPSRC. The application should be by short letter giving:

1. the names of at least two co-applicants, one a member of a mathematical science department and one a member of a non-mathematical department;
2. outline CVs of the two applicants;
3. a description of how the grant would be used.

If none of the applicants is a member of the Society then the application must be countersigned by a member. Preference will be given to novel areas of application. Support for existing collaborations is not eligible.

Multiple Applications

The Society does not like to receive sequential applications for grants to support the same or closely related events, and will not allow its limits for individual schemes to be exceeded by artificially sub-dividing an application into a number of separate requests under different headings.

In the case of satellite conferences, organisers of the main meeting are asked to give brief details of any planned satellites as part of their application for a conference grant. Applications for support for satellite meetings should make clear the financial and organisational connection with the main meeting. This is particularly important in cases where the expenses of speakers could be shared between the two meetings. Special arrangements apply to the BMC and its satellites.

Notes for Guidance

Applicants should keep in mind the following points:

1. The committee does not normally meet the full cost of an activity. Rather it aims to give added value to an event largely funded by other means, or to bridge the gap between cost and the resources that might reasonably be made available by a university department.
2. The grants do not cover departmental overheads. The committee will generally not allow items such secretarial costs, which could be seen as part of normal departmental provision, or entertainment.
3. Each of the schemes has a particular

aim as well as its own financial limits. It is helpful if applicants consider carefully how their proposal fits the particular scheme in question, and its detailed rules (which change from time to time). Thus the academic justification for a Scheme 2 grant should focus on the benefit to UK mathematics that the proposed visit would bring, while that for a Scheme 5 grant should focus on the benefits in the Scheme 5 country. In neither case should it be assumed that the distinction of the visitor renders further justification unnecessary.

4. The committee is made up of mathematicians with a wide spread of research interests, but it should not be assumed that they are familiar with the technical details of any particular area of mathematics. Proposals are judged by the committee itself: although it may seek advice, it does not normally send proposals to referees. It is therefore important that the case for a grant should be written for the general mathematician and not for the specialist. Applications should be brief and self-contained. Please do not append substantial documents that contain irrelevant detail or refer to web sites for key information. Applications must be sent in hard copy to De Morgan House.
5. The committee judges each application on its merits. Since its membership changes from year to year, it should not be assumed that it is familiar with the details of previous applications and correspondence from earlier rounds; nor should it be assumed that a grant, for example under Scheme 3 or for a regular collaboration under Scheme 4, will be renewed repeatedly.
6. The limits mentioned in the various schemes are upper bounds, not standard awards. Grants are made to meet actual expenditure on items in the application, and any surplus must be returned to the Society, rather than retained for related purposes or carried forward to another year.
7. The task of collating applications, forwarding them to the committee, recording decisions, and preparing and checking notification letters is nontrivial and time-consuming. Please apply well in advance and bear in mind that you may not hear the outcome of an application immediately.

Grants awarded since December 2001

SCHEME 1

Applicant	Title	Grant
U.L. Tillmann	Topology, Geometry and Quantum Field Theory	£5,000
B. Leimkuhler	Invariant and Symmetry Preserving Algorithms for N Body Simulation	£3,290
S. Bond	Statistical Research Students Conference 2002 (RSC2002)	£1,000
C. Rourke	BMC/BAMC	£10,000
D.G. Larman	60th Birthday of Professor P. McMullen	£3,000
S. Hendren P. Hardy	4th Postgraduate Group Theory Conference, 2002	£2,425
C. Saker	Postgraduate Combinatorial Conference	£1,865
R. Horan	International Workshop on Theoretical and Mathematical Physics	£5,000
B. Krauskopf	Numerical Methods for Nonlinear Dynamics & Bifurcations	£1,000
A.J.W. Hilton	Reading One Day Combinatorics Colloquium	£400
J.L. Cardy	6th Informal UK Meeting on 2D Integrable Models and Conformal Field Theory	£1,206

A. Ranicki	Noncommutative Localization in Algebra and Topology	£2,720
J. Kellendonk	Intercollegiate Colloquium in Mathematics 2002	£1,886
A. Jung	Workshop Domains VI	£3,800
H. van Elst R. Tavakol	Second British Gravity Meeting (BRITGRAVII)	£500
E. Ritter	British Logic Colloquium	£1,200
J. Brodzki	Discrete Groups and Analysis	£5,000
A. Juel	Foams, Fluids and Liquid Crystals: The Complexity of Fluid Motion	£830
C. Wang	43rd European Study Group with Industry	£1,000
M. Mathieu	Belfast Functional Analysis Day 2002	£840
S.Y. Novak	Recent Advances in Probability and Statistics	£1,000
A.B. Movchan	IUTAM Symposium on Asymptotics, Singularities and Homogenization in Problems of Mechanics	£2,000
P. Butkovic	International Workshop on Max-algebra (on the occasion of the 70th birthday of Professor R.A. Cuninghame-Green)	£4,892
V.M. Rothos	Dynamical Systems Methods in Nonlinear Wave Equations	£2,850

SCHEME 2

Applicant	Visitor	To Visit	Grant
Z. Lykova	J. Eschmeier	Newcastle, Leeds, Cambridge	£430
M. Mathieu	A. Defant	QUB, Leeds, Lancaster	£515
A. Scott	R. Kannan	Oxford, UCL, Cambridge	£430
L.J. Mason	S. Gindikin	Oxford, Warwick, Edinburgh	£350
P. Fleischmann	G. Michler	UEA, Oxford, Kent	£401
H. van Elst	C. Klein	Oxford, Queen Mary, Southampton	£133
V.V. Goryunov	A. Dimca	Liverpool, Warwick, Leeds	£590
S. Pott	O. Blasco de la Cruz	Oxford, York, Edinburgh, Lancaster	£570
P. Ashwin	G. Dangelmayr	Exeter, Cambridge, Leeds	£600
J.D.M. Wright	A. Volcic	Reading, Oxford, Goldsmiths	£400

SCHEME 3

Applicant	Institution	Title	Grant
S. Reich	Imperial College	Numerical Methods for Multi-scale Phenomena in Materials and Fluids	£1,000
H.R. Dullin	Loughborough	East Midlands Mathematical Physics Seminar	£1,000
X-M. Li	Nottingham Trent	East Midlands Stochastic Analysis Seminar	£500
C.Morgan	UCL	Set Theory and its Neighbours	£500

SCHEME 4

Applicant	Institution	Collaborator	Institution	Grant
A. Stuart	Warwick	R. Kupferman	Hebrew, Jerusalem	£500
A. Eberle	Oxford	K. von Renesse	Bonn	£350
R.J. Archbold	Aberdeen	K. Deicke	Paderborn	£425
M.J. Cooker	UEA	C.M. Linton	Loughborough	£254
R. Taillefer	Leicester	E. Green	VPI & SU, Virginia	£500

M. van den Berg	Bristol	B. Tóth E. Bolthausen	Budapest Zürich	£500
S. Gourley	Surrey	Y. Kuang	Arizona State, Phoenix	£500
N. Byott	Exeter	B. Sodaïgui	Valenciennes	£450
H. Logemann	Bath	R.F. Curtain	Groningen	£480
T. Ward	UEA	S. Bhattacharya	Vienna (Tata)	£500
P. Mörters	Bath	J. Blath	Kaiserslautern	£500
C. Michels	Leeds	M. Mastylo	Poznan	£495
C.W. Eaton	Birmingham	J.B. Olsson	Copenhagen	£428
O.H. King	Newcastle	A. Cossidente	Potenza	£500
A. Borovik	UMIST	A. Nesin	Lyon 1 (Bilgi, Istanbul)	£500
I. McIntosh	York	E. Carberry	MIT, Boston	£500
T.H. Lenagan	Edinburgh	K.R. Goodearl	Santa Barbara	£500
K. Erdmann	Oxford	G. Hiss	RWTH Aachen	£140
F. Kirwan	Oxford	Y-H. Kiem	Stanford	£500
P. Plechác	Warwick	E. Weinan	Princeton	£490
I.J. Siemons	UEA	F. Dalla Volta	Milan	£400
W.J. Zakrzewski	Durham	M.E. de Gouvea	Belo Horizonte, Brazil	£500
V.C. Mavron	Aberystwyth	C.A. Pallikaros	Cyprus	£500
D. Barkley	Warwick	Y. Kevrekidis	Princeton	£475
J.K. Langley	Nottingham	J. Rossi	Blacksburg	£500
S.Y. Novak	Brunel	J. Beirlant	Leuven	£500

SCHEME 5

Applicant	Visitor	Institution	To Visit	Grant
A.A. Ivanov	N.M. Singhi	Tata, Mumbai	Mumbai	£750
S.B. Kuksin	A. Bulinski	Moscow	Heriot-Watt	£1,440
M. Mathieu	N. Boudi	Tetouan, Morocco	QUB	£1,800
A.M.W. Glass	N. Ya Medvedev	Altai State, Barnaul, Russia	Cambridge	£1,400
D.J. Henwood	G. Marewo	Zimbabwe	Zimbabwe	£874
E.F. Robertson, C.M. Campbell	A.B. Konovalov	Zaporozhye, Ukraine	St Andrews, Glasgow, Heriot-Watt	£1,700
B. Zegarlinski	R. Olkiewicz	Wroclaw	Imperial College	£350
N.H. Scott	L.Y. Kossovich	Saratov State	East Anglia, Manchester, Salford	£1,830
R. Khanin	V. Edneral	Moscow State	Cambridge, Bath	£1,900
A. Daletskii	Y. Samoilenko	Kiev	Nottingham Trent	£1,650
V.N Kolokoltsov	O. Gulinsky	Moscow	Nottingham Trent, Leeds, Warwick	£1,450
Y.A. Antipov	V.V. Silvestrov	Chuvash State	Bath, Liverpool	£1,850
B.M. Brown, W.D. Evans	S. Naboko	St Petersburg	Cardiff, Bath, Kings College	£1,550
A. Premet	E.B. Vinberg	Moscow	Manchester, Glasgow, Warwick	£1,860
J. Hunton	M. Shchukin	Belarus	Leicester, Newcastle, Southampton	£1,800

I. Gyongy	J. Fritz	Budapest	Edinburgh, Heriot-Watt, Oxford	£1,400
M. Prest	S. Crivei	Babes-Bolyai, Cluj, Romania	Manchester	£1,850
J.T. Edwards	P.B. Dubovski	Russian Academy of Sciences	Chester, Manchester, Liverpool	£1,530
A. Hone	T. Seligman	CIC, Cuernavaca, Mexico	CIC, Cuernavaca & UNAM, Mexico City	£550
P. McIver	N. Kuznetsov O. Motygin	St Petersburg	Loughborough	£1,260
S. Kuksin	A. Bulinski	Moscow	Moscow, Kiev	£980
R.V. Craster	A. Petrosyan	Russian Academy of Sciences	Imperial College, Sheffield, St Andrews	£1,400
D. Mond	M. Kazarian	Steklov Institute	Warwick	£1,450
G.J. Rodgers	O. Sotolongo-Costa	Havana	Havana	£500
A. Shadrin	B. Bojanov	Sofia, Bulgaria	Cambridge	£1,000
A.C. Pugh S.H. Yang	L. Tan	China	Loughborough, Birmingham, Southampton, Oxford	£1,886
C. Michels	M. Mastylo	Adam Mickiewicz, Poznan	Leeds, Lancaster	£800
C.J.G. Morgan	P. Koszmider	São Paulo	São Paulo	£1,200
A. Fordy	A.B. Shabat	Landau	Landau Inst & Steklov MI	£911
J.D.M. Wright	D. Bakic	Zagreb	Reading, Oxford, Goldsmiths	£1,100
P. Muldowney	D.K. Ganguly	Calcutta	Calcutta	£1,200
A. Gardiner	S. Hansraj A. Nambiar	Durban, AMESA	Durban, AMESA	£1,050
E.V. Ferapontov	L.V. Bogdanov	Laundau	Loughborough	£1,400

THEORETICAL AND MATHEMATICAL PHYSICS CHANNEL MEETING

The Channel Meeting on Theoretical and Mathematical Physics will be hosted by the particle physics group at the University of Plymouth on 20-24 August 2002. The aim of the meeting is to bring together researchers working on various aspects of theoretical particle physics to discuss recent progress in the broad area, and in particular the application of modern mathematical physics methods to current problems in particle physics research. The programme of the meeting and the registration form can be found on the website (http://www.tech.plym.ac.uk/maths/hep.html). The meeting is sponsored by an LMS Conference grant and the Particle Physics and Astronomy Research Council. For further information contact Dr R.E. Horan, Department of Mathematics and Statistics, University of Plymouth, Plymouth PL4 8AA (rhoran @plymouth.ac.uk).

SURFACE EVOLVER EXTRAVAGANZA

Hewlett-Packard Event
30 July 2002

in association with the Newton Institute programme entitled
Foams and Minimal Surfaces

29 July-23 August 2002

Organisers: Dr A. Kraynik (Sandia), Professor H. Stone (Harvard), Professor E. Terentjev (Cavendish Labs.), Professor D.L. Weaire (Dublin)

Speakers: K. Brakke (Susquehanna), A. Kraynik (Sandia), J. Sullivan (Illinois)

Programme Theme: Surface Evolver Extravaganza : a one-day meeting (11 am to 5 pm) devoted to the Surface Evolver, with a keynote presentation from its developer, Professor Ken Brakke.

The Surface Evolver is a software package that models the geometry of materials shaped by surface energies, from foams and membranes to crystal growth, from fluids to microelectronics. It was developed by the mathematician Ken Brakke, of Susquehanna University, and is freely available (http://www.susqu.edu/brakke/evolver). Professor Brakke will give a keynote lecture on "Kelvin partitions and stability".

The uses of the Surface Evolver in Foams and Minimal Surfaces and other fields will be discussed. Members of the FMS workshop will present additional contributions and others are invited to contribute short talks (email: simon.cox@tcd.ie).

Further Information about the meeting is available from the website at:
http://www.newton.cam.ac.uk/programs/FMS/index.html

where information about the main programme can be found. Lunch will be available for a nominal charge; please let Tracey Andrew at the Institute know by **12 July 2002** 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). There are limited funds available to assist research students to attend. Apply by **12 July 2002** to Tracey Andrew at the Isaac Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH, or via e-mail (t.andrew @newton.cam.ac.uk).

INTERNATIONAL CENTRE FOR MATHEMATICAL SCIENCES

New Scientific Director

Professor John Toland, FRS, has been appointed Scientific Director of the International Centre for Mathematical Sciences, Edinburgh, from October 2002. He succeeds the Centre's first Scientific Director, Professor Angus Macintyre, FRS.

The University of Bath has kindly agreed to release him from some of his duties to enable him to undertake the task of Scientific Director. Professor Toland can be contacted on ICMS business at 14 India Street, Edinburgh EH3 6EZ (email : icms@maths.ed.ac.uk).

Call for Proposals

Proposals and expressions of interest are invited from potential organisers, in the UK and elsewhere, for

- research programmes
- conferences and workshops
- instructional courses

across the whole range of the mathematical sciences, and in new or traditional subjects and interdisciplinary areas with significant mathematical content. Under its Executive Director, Tracey Dart (tracey@maths.ed.ac.uk, 0044 (0)131 220 1777), ICMS offers a significant level of administrative support and advice on organisational and financial matters. The Programme Committee meets twice a year, in winter and in summer, to consider proposals at various stages of development.

Potential organisers should contact ICMS at as early a stage as possible to discuss their ideas. A document (two sides of A4 should suffice) with the following information on the proposed meeting is useful:

- A discussion of the objectives, novelty and timeliness
- Background to current national and international activity
- Names of the Scientific Organisers
- Key participants
- Proposed dates, size and duration
- Potential sources of funding

The ICMS website (http://www.ma.hw.ac.uk/icms/) contains information on future and past events and guidelines for organisers of events. New ideas are always welcome.

13TH POSTGRADUATE COMBINATORIAL CONFERENCE

The 13th Postgraduate Combinatorial Conference will be held on 24 - 26 July 2002 at the University of Essex. The aim of the Postgraduate Combinatorial Conference has always been to allow students to talk about their research in an informal environment and to make contacts amongst their peers. The conference is aimed at British and European students working towards a PhD in mathematics in any area of Combinatorics.

Each student is encouraged to give a short talk about their research. This will be the first time that most students have spoken about their research outside their own department and is an excellent opportunity to gain practice in front of a small friendly audience

There will be three invited speakers:

- Professor Peter Cameron (Queen Mary, University of London)
- Professor Graham Brightwell (London School of Economics)
- Dr Chris Wensley (University of Wales, Bangor)

The conference runs from the afternoon of Wednesday 24th July to lunchtime on Friday 26th July. Accommodation is available on campus for those attending the conference. This conference is being run with financial assistance from the London Mathematical Society and the British Combinatorial Committee. Further details are available from the organiser, Chris Saker (cjsake@essex.ac.uk) or from the conference website (http://www.essex.ac.uk/maths/pcc2002).

MATHEMATICAL CHALLENGES IN SCIENTIFIC AND ENGINEERING COMPUTATION

20 - 24 January 2003

Supported by the Engineering and Physical Sciences Research Council of Great Britain in association with the Newton Institute programme

Computational Challenges in Partial Differential Equations
20 January - 4 July 2003

Organisers: Mark Ainsworth (University of Strathclyde), Charles M. Elliott (University of Sussex), Endre Süli (Oxford University)

Advisory committee: John W. Barrett (Imperial College, London), Franco Brezzi (University of Pavia, Italy), Ricardo Nochetto (University of Maryland, USA), Rolf Rannacher (University of Heidelberg, Germany), Nigel Weatherill (University of Wales at Swansea), John R. Whiteman (Brunel University, London)

Theme of conference: The conference aims to identify major application areas in science and engineering where developments in computational PDEs are needed and will have a significant impact. The format of the meeting is designed to promote extensive and wide-ranging discussion on the role of computational partial differential equations in science and engineering, and includes a one-day session devoted to the EPSRC managed programme on Computational Engineering Mathematics.

Confirmed speakers include:

T. Chan (UCLA)
R. Glowunski (Houston)
A. Quarteroni (Lausanne/Milan)
A. Sutton (Oxford)
T. McLeish (Leeds)
B. Engquist (Princeton)
O. Pironneau (Paris)
R. Rannacher (Heidelberg)
E. Weinan (Princeton)

Location/Accommodation: The workshop will take place at the Newton Institute. Accommodation will be taken care of by the Newton Institute.

Funding: Support has been obtained from EPSRC for around twenty UK academics, particularly engineers and mathematicians involved in the EPSRC Computational Engineering Mathematics Programme. Eligible participants are encouraged to approach the organisers at an early stage. Support for younger researchers is available under the Newton Institute Junior Membership Scheme.

Further information and application form are available from the website at:
http://www.newton.cam.ac.uk/programs/CPD/cpdw01.html

Completed application forms should be sent to Tracey Andrew at the Isaac Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH, or via e-mail (t.andrew@newton.cam.ac.uk).

Closing date for the receipt of applications is **31 July 2002**

COMPUTATIONAL CHALLENGES IN MICROMAGNETICS AND SUPERCONDUCTIVITY

Hewlett-Packard Event
13-14 February 2003

in association with the Newton Institute programme entitled
Computational Challenges in Partial Differential Equations
(20 January to 4 July 2003)

Organisers: Mark Ainsworth (University of Strathclyde), Charles M. Elliott (University of Sussex) and Peter B. Monk (University of Delaware)

Theme of meeting: The meeting addresses two significant themes: Micromagnetics and Superconductivity. The aim is to identify the major applications in each area where progress in computational techniques for partial differential equations is needed and will have a significant impact. Leading experts, including physicists, engineers, numerical analysts and theoretical PDE analysts will deliver survey lectures on their area of expertise. The speakers have been selected with the aim to provide a comprehensive overview of the current state of the field, with particular emphasis on the interactions between theory, applications and practice.

Speakers: Gilles Carbou (Bordeaux); John Chapman (Glasgow); S. Jonathan Chapman (Oxford); Qiang Du (HKUST); Max Gunzburger (Iowa State); Malcolm McCulloch (Oxford); Peter Monk (Delaware); Leonid Prigozhin (Ben Gurion); Andreas Prohl (Zürich); Thomas Schrefl (Vienna); Vanessa Styles (Sussex).

Structure of the meeting: The meeting will comprise two one-day programmes corresponding to the themes of micromagnetics and superconductivity. Each day will consist of a survey talk by a scientist involved in the modelling of the phenomena, a survey talk by an engineer involved in practical applications and an overview of known theoretical properties of the solutions of relevant models. These will be followed by more specialised talks on the development and analysis of state-of-the-art algorithms for their numerical approximation.

Further information about the meeting is available from the website at:
http://www.newton.cam.ac.uk/programs/CPD/cpdw02.html

where information about the main programme can be found. Lunch will be available for a nominal charge; please let Tracey Andrew at the Institute know by **24 January 2003** 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). There are limited funds available to assist research students to attend. Apply by **24 January 2003** to Tracey Andrew at the Isaac Newton Institute, 20 Clarkson Road, Cambridge CB3 OEH, or via e-mail (t.andrew@newton.cam.ac.uk).

THE INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS

FORTHCOMING CONFERENCES

Applications of Geometric Algebra	*Trinity College, Cambridge, 5-6 Sept 2002*
Mathematics in Communications	*Lancaster University, 16-18 December 2002*
Mathematical Education of Engineers IV	*University of Loughborough, 1-3 April 2003*
Bifurcations, the Use and Control of Chaos	*University of Southampton, 28-30 July 2003*
Quantitative Modelling in the Management of Healthcare	*University of Salford, 3-5 September 2003*
Image Processing IV	*Leicester, 9-12 September 2003*
Mathematics of Surfaces X	*University of Leeds, 15-17 September 2003*
Fractal Geometry II	*Leicester, 16-19 September 2003*
Cryptography and Coding	*Royal Agricultural College, Cirencester, 16-18 December 2003*
Modelling Permeable Rocks	*University of Southampton, 30 March -1 April 2004*

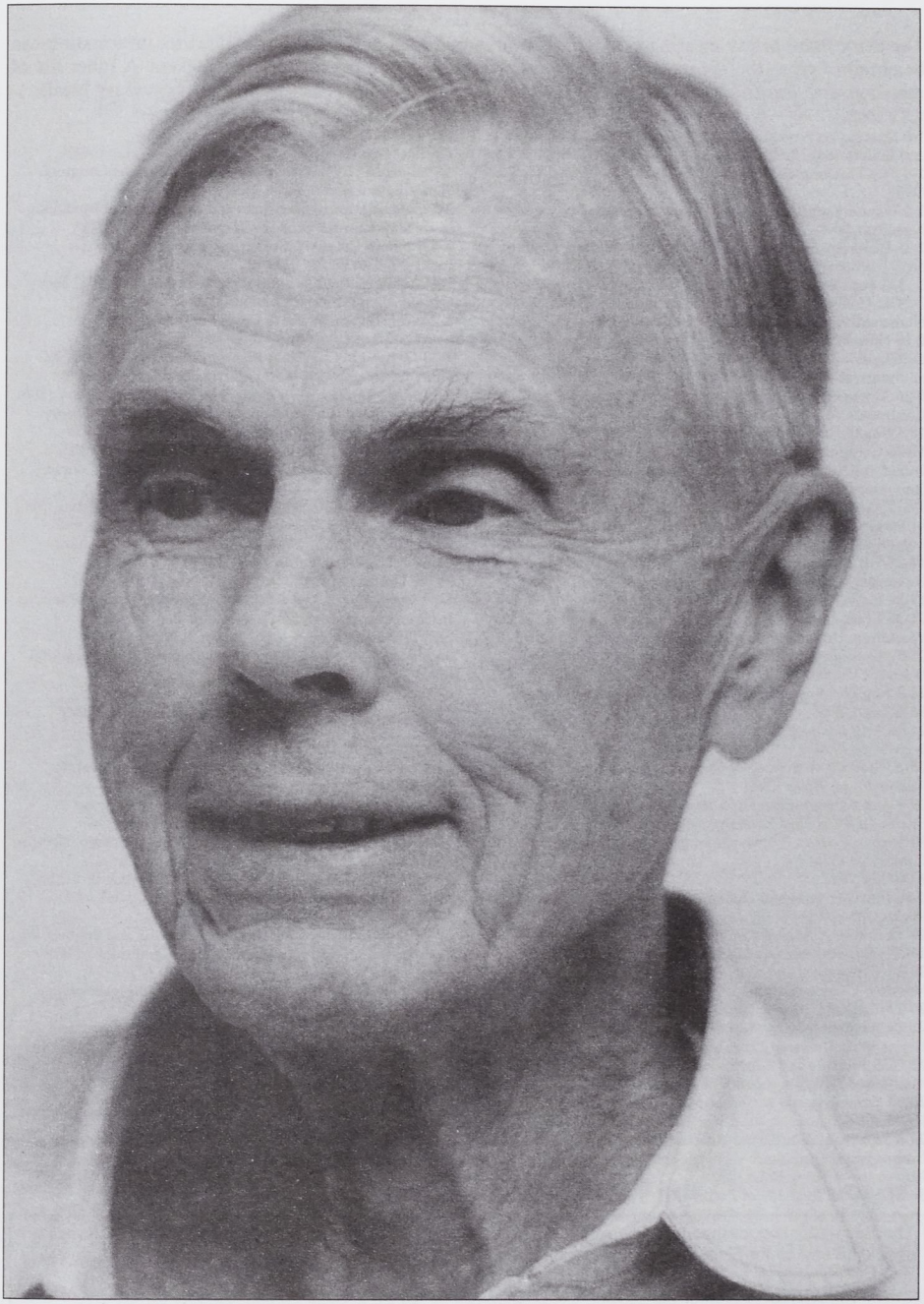
CO-SPONSORED CONFERENCES

Theory and Applications of Perturbation Methods	*University of Glasgow, 17 September 2002*
RADAR 2002	*Edinburgh University, 15-17 October 2002*

For further details of all these conferences visit our website (www.ima.org.uk) or contact: Belinda Morris Conference Office, The Institute of Mathematics and its Applications, Catherine Richards House, 16 Nelson Street, Southend-on-Sea, Essex SS1 1EF.

Direct line: (01702) 356114
Email: conferences@ima.org.uk

Switchboard: (01702) 354020
Fax: (01702) 354111



J.T. TATE
HONORARY MEMBER 1999

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).

JULY 2002

1-3 Meeting on Numerical Methods for Nonlinear Dynamics and Bifurcations, Bristol University (305)
1-6 The Teaching of Mathematics Conference, Crete, Greece (297)
1-6 Wavelets and Applications Workshop, University of Barcelona (304)
1-11 Representations of Finite Groups and Related Algebras, LMS Durham Symposia, Durham University (302)
3 LMS Popular Lectures, Institute of Education, London (305)
7-19 LMS/EPSRC Short Course X-th Summer School in Numerical Analysis, Durham University (305)
8-19 Normal Forms, Bifurcations and Finiteness Problems in Differential Equations SMS-NATO ASI Meeting, Université de Montréal, Canada (298)
8-26 Algebraic K-theory and its Applications School and Conference, ICTP, Italy (300)
10-19 Analytic Number Theory CIME Course, Italy (304)
15-25 Computational Methods for Wave Propagation in Direct Scattering, LMS Durham Symposia, Durham University (302)
18-19 Mathematical Foundations of Computer Science and Information Technology Conference, National University of Ireland (301)
19-25 9th International Mathematics Competition for University Students, Warsaw University, Poland (304)
19-30 IMO 2002, Strathclyde University (305)
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)
23-2 Aug EDGE mid-term Summer School and Conference, Edinburgh (299)
24-26 13th Postgraduate Combinatorial Conference, Essex University (306)
26-27 Meeting in honour of 65th birthday of M.S.P. Eastham, University of Wales (296)
29-8 Aug Astrophysical Fluid Mechanics, LMS Durham Symposia, Durham University (302)
30 Surface Evolver Extravaganza, Isaac Newton Institute, Cambridge (306)

AUGUST 2002

5-15 New Directions in Dynamical Systems, Ryukoku and Kyoto Universities (293)
10-12 Complex Analysis Satellite Conference, Kyoto (304)
14-17 Complex Analysis Satellite Conference, Shanghai (304)
20-24 Theoretical and Mathematical Physics Channel Meeting, Plymouth University (306)
20-28 ICM2002, Beijing, China (297)
21-29 Workshop on Modern Problems in Applied Probability, Heriot-Watt University (301)
23 LMS Meeting and Reception, International Congress of Mathematicians, Beijing (305)
26-30 Combinatorial & Computational Aspects of Statistical Physics Workshop, Newton Institute, Cambridge (303)
29-2 Sept Nonlinear Partial Differential Equations International Conference - Theory and Approximation, City University of Hong Kong (297)
30-31 Sixtieth Birthday of Professor T. Terzioglu, Middle East Technical University, Ankara, Turkey (305)

SEPTEMBER 2002

1-6 Real Functions Theory Conference, Slovakia (304)
1-9 Algebraic Hyperstructures and Applications Congress, Samothraki Island, Greece (300)
2-5 Computational, Statistical and Mathematical Modelling in Biology Summer School, Glasgow University (306)
2-6 Random Graphs & Structures Workshop, Newton Institute, Cambridge (303)
2-6 Topics in Algebraic Number Theory LMS/EPSRC Short Course, King's College London (304)
5-7 Workshop on Discrete Groups and Analysis, Southampton University (305)
9-13 Designs in Combinatorics and Statistics LMS/EPSRC Short Course, Queen Mary, University of London (304)
9-13 Mathematics in Medicine, Nottingham University (306)
9-20 Axiomatic, Enriched and Motivic Homotopy Theory Conference, Isaac Newton Institute, Cambridge (302)
9-27 Intersection Theory and Moduli, ICTP, Italy (300)
15-21 Theory and Applications of Imaging CIME Course, Italy (304)
16-19 Domains - VI Workshop, Birmingham University (306)
16-20 Differential Geometry, Homogeneous Spaces and Integrable Systems LMS/EPSRC Short Course, Durham University (304)
26-29 Thompson Fest, Cambridge University (305)
30-4 Oct K-theory and Arithmetic Conference, Isaac Newton Institute, Cambridge (302)

OCTOBER 2002

23 BSHM/LMS Meeting, The Four-colour Problem, London (306)

NOVEMBER 2002

16 Functional Analysis Conference, Queen's University Belfast (305)
22 LMS Annual General Meeting, London
25 LMS South West and South Wales Regional Meeting

DECEMBER 2002

9-13 Elliptic Cohomology and Chromatic Phenomena EuroWorkshop, Newton Institute, Cambridge (305)
16-12 Higher Chromatic Phenomena EuroWorkshop, Newton Institute, Cambridge (305)
17 Recent Advances in Probability and Statistics Workshop, Brunel University of West London (306)

JANUARY 2003

20-24 Mathematical Challenges in Scientific and Engineering Computation, Isaac Newton Institute, Cambridge (306)

FEBRUARY 2003

10-14 Permutation Patterns Conference, Otago University, New Zealand (303)
13-14 Computational Challenges in Micromagnetics and Superconductivity, Isaac Newton Institute, Cambridge (306)

APRIL 2003

7-10 BMC 2003, Birmingham University (296)
7-10 BAMC 2003, Southampton University (296)

JULY 2003

7-11 ICIAM 2003, Industrial and Applied Mathematics, Sydney, Australia (305)
27-9 Aug Banach Algebras and their Applications Conference, Edmonton, Alberta (302)

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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The London Mathematical Society is registered with the Charity Commissioners.

Printed by Armstrong Press Ltd, Southampton 023 8033 3132