# THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 300

January 2002

## FORTHCOMING SOCIETY MEETINGS

Friday 15 February 2002 – London

Mary Cartwright Lecture
F.C. Kirwan FRS, S.K. Donaldson FRS

Wednesday 27 February 2002 – Birmingham

Midlands Regional Meeting

Model Theory and Logic

Wednesday 5 June 2002 – Liverpool

Northern Regional Meeting

Algebraic Geometry, Knot Theory and Related Areas

Friday 21 June 2002 – London

Professor A.R. Its (Hardy Lecture)

## COUNCIL DIARY November 2001

One of the main points in this month's Council was a report from the Computer Science Committee. This committee has been running for several years, and among its achievements EPSRC/LMS MathFIT programme. At today's meeting the Committee presented some new proposals to help the LMS to engage with the theoretical computer science community, and to encourage collaboration between mathematicians and computer scientists. One outcome was a new grant scheme for collaborative research, similar to what was recently put into place to support collaboration with engineers. It is also expected that a future Society meeting will be held in the area of theoretical computer

A more controversial issue had been raised by an LMS member and communicated by the Women In Mathematics Committee. In question was the desirability of publishing job advertisements

from institutions which do not offer equal opportunities to men and to women - notably from countries where women's rights are restricted. The issue is complex, and after some discussion was left for the moment unresolved - perhaps because at the moment the question is a somewhat theoretical one.

The Society is now a member of the Science Council, and our President reported on a recent meeting of the Council's Board. Of potential relevance to LMS publishing activities, and also to some individual mathematicians, was a discussion about a Code of Ethics, which might require the disclosure of commercial or industrial sources of funding in published papers, particularly when a funding body might be felt to have a commercial interest in a particular outcome of the published research.

The November Council meeting is always a brief one, because of the AGM held later in the day. It is also an occa-

sion to express gratitude to retiring members of Council. Ken Brown is leaving after many years of devoted service to the Society in a variety of roles - as member of Council, Vice-President, and Chair of the Personnel Committee among others. We also said goodbye to Martin Bridson, Peter Covey-Crump, John Cremona and David Preiss, and thanked them for their service. Thanks were also expressed to Peter Saunders. who is now finishing as Chairman of the Education Committee, at which he has worked unstintingly for several years. Finally, Nick Woodhouse was thanked for the invaluable service that he has given as Meetings and Membership Secretary; we shall expect him back as a Society Officer in the near future.

As this is to be my final diary (Sarah Rees will take over the diarist's quill in January), it would be appropriate to record the privilege it has been to report on Council's work during what has surely been the most eventful 4 years in the Society's recent history. During this time we have seen the move to De Morgan House, a major reorganisation of the Society's management and administration, and the addition to the Society's publishing portfolio of a major international journal. We have also seen - and there is promise of more to come significant increase in the Society's presence outside what might be regarded as its core constituency, through expanding its activities in applied mathematics and its links with other disciplines, without

diluting its commitment to the LMS charter. The Council Diary reflects the personal impressions of a member of Council, and is not an official record of the meeting. (The official minutes of Council meetings are not published, but are long and for the most part unexciting.) However one has to err on the side of caution when sensitive issues are involved, and perhaps because of this I have not been successful in stimulating LMS members to respond or comment on the current issues. Perhaps everyone is happy with how things are managed and with the direction in which the LMS is heading, but it is dangerous always to take silence for assent. It would be good were more members to express their views in letters to the Newsletter.

Tony Scholl

## PROFESSOR DONALD LIVINGSTONE

Professor Donald Livingstone, who was elected a member of the London Mathematical Society on 17 June 1965, died on 15 October 2001, aged 77. A Memorial Service will take place on Saturday 19 January at 2.00 pm in St Francis Hall - right by the East Gate to the University of Birmingham.

## DR JACOB J.C. VERMEULEN

Dr Jacob J.C. Vermeulen, who was elected a member of the London Mathematical Society on 18 November 1983, died on 11 February 2001, aged 43.

4 January	Deadlines Reminder Registration for the British Women in Mathematics Day
11 January	Hardy Fellow 2004 nominations
mi-gallauri la	Faraday Partnership
14 January	Submission of nomination to Prizes Committee
24 7	EPSRC Postdoctoral Fellowships
31 January	Payment of annual subscription
O T .1	Programme Committee grant applications
8 February 11 February	Submission of applications for the Cecil King Travel Scholarship
28 February	rayment for dinner at the Mary Cartwright Meeting
20 reditiary	Submission for an LMS grant to ICM 2002 - Beijing

## LONDON MATHEMATICAL SOCIETY

## MARY CARTWRIGHT LECTURE

Friday 15 February 2002

Room G50, School of Oriental and African Studies, Thornhaugh Street, Russell Square, London WC1

3.30 pm - 4.30 pm Professor S.K. Donaldson FRS

(Imperial College)

Convex analysis and toric manifolds

4.30 pm - 5.00 pm Tea

5.00 pm - 6.00 pm Mary Cartwright Lecture

Professor F.C. Kirwan FRS (Oxford) Moduli spaces of Riemann surfaces and

holomorphic bundles

A reception will be held at De Morgan House at 6.15 pm with a dinner afterwards at Poons Restaurant, 50 Woburn Place, Russell Square, London WC1 at 7.15 pm. The cost will be £23.50 per person, inclusive of wine. Those wishing to attend should inform Frances Spoor, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS, enclosing a cheque payable to the 'London Mathematical Society' to arrive no later than **Monday 11 February 2002**. Those wishing to book accommodation should contact Frances Spoor (tel: 020 7637 3686, e-mail: spoor@lms.ac.uk).

There are limited funds available to contribute in part to the expenses of members of the Society or research students to attend the meeting. Requests for support may be addressed to the Meetings and Membership Secretary, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (lms@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.

## TREASURER'S REPORT TO THE ANNUAL GENERAL MEETING 2001

A hard copy of the Annual Report and Accounts is available to all members of the Society on request and the report is on the Society's website; below is my report to the Annual General Meeting on November 23rd 2001.

In the Financial Year September 1st 2000

- August 31st 2001

• The Fixed Asset Investments of the Society decreased from £13,004,939 to £11,180,629. Financial markets were at their most volatile during this period and this is reflected in the appreciable depreciation of the Society's assets.

• In order to take full advantage of the powers of the Trustee Act 2000, the Ordinary Share Fund and the Fixed Interest Fund were amalgamated to form a single Investment Fund. At the end of the financial year on August 31st 2001 the total in the Investment Fund was £8,361,212 compared with the previous year's total of £9,699,457. These were composed of £1,996,353 (£1,571,113) in gilts and £6,364,859 (£8,128,344) in equities; there was a further £1,412,369 (£1,783,315) in high earning bank deposits - last year's figures in brackets in each case.

• The Printing and Publication Reserve Fund and the Building and Development Reserve Fund now stand at £1,200,000 and £500,000 respective-

ly.

· Again this year, the Society's publishing activities have flourished both academically and financially, generating an unexpected surplus of £673,683. This was due to good management rather than excessive profit taking. In large part it was due to the really hard work put in by the Journal Editors and Secretary, who got the Journal back on schedule for the first time in many years - this transferred a total of £105,000 of deferred income into the accounts. However, as last year, a great deal is due to the vigilant management of the Society's publishing activities by the Publisher

• Total expenditure of the Conference and Programme Committee, Research Meetings Committee, Computer Science Committee, Women in Mathematics Committee and Education Committee has increased to £301,085 (the comparable sum five years ago was £105,102).

Further expenditure in support of the main objects of the Society totalled

£66,763.

- Total membership (including Institutional Members) increased to 2,498; the subscriptions received totalled £45,620. A total of £35,955 was expended on direct services to members.
- Reflecting increased activities on all fronts, management and administrative costs stand at £431,113 - however, this year this includes exceptional figures on the external decoration and maintenance of De Morgan House and on changes required to meet Health and Safety requirements.

As this will be the last report that I will present to the Annual General Meeting, I would like to take this opportunity to express my gratitude to members of the Society for electing me to the position of Treasurer of the Society and for their continued support. The last eight years have been momentous ones for the Society and it has been a great pleasure to work with such dynamic and forward-looking Presidents and also fellow Officers and Council members. In these last three years, all the staff at De Morgan House has given excellent support, in particular Ephrem Belay as Finance Officer. However, I have had the pleasure to work with the Society's Administrator, Susan Oakes, throughout the whole period. Her incomparable knowledge of the Society's affairs and her constant dedication to the Society's needs are a source of inspiration to us all.

> A.O. Morris Treasurer

## VISIT OF DR V. MAZORCHUK

Dr Volodymyr Mazorchuk (Uppsala University) will visit the University of Leicester from 8 January to 2 February. He will give talks at Oxford, Liverpool, Leeds and Leicester. His visit is funded by an LMS scheme 2 grant. Anybody interested in meeting him should contact Steffen Koenig (e-mail: sck5@mcs.le.ac. uk, tel: 0116 252 5670).

## NEWS FROM DE MORGAN HOUSE

Members may use a PC located in the Verblunsky Room of the Society's head-quarters between 9.30 am and 5.30 pm from Monday to Friday. Members are asked to sign in at reception, where they will be issued with a password. The services on offer are Telnet, SSH, internet connection and FTP facility.

## ANNUAL LMS SUBSCRIPTION

The Society is appreciative of those members who have paid their 2001/02 subscriptions. May we remind those who have not yet paid that subscriptions were due on 1 November 2001. Prompt payment ensures continuity of publications and avoids the need for time-consuming reminders. The Society reserves the right to discontinue the supply of periodicals and the Newsletter to members whose subscrip-

tion remains unpaid by 31 January 2002. The methods of payment are either by a sterling cheque drawn on a UK bank; a US\$ cheque drawn on a US bank, Direct Debit, Credit Card or Eurocheque (quoting your card number on the reverse). If you have misplaced your renewal of subscription form, contact the LMS office (e-mail: membership@lms.ac.uk; tel: 020 7637 3686; fax: 020 7323 3655).

#### Rates 2001/02

	Individual Members Rate		
Subscriptions			
Ordinary	£24.50	\$49.00	
Reciprocity	£12.25	\$24.50	
Associate	£6.50	\$13.00	
European Mathematical Society	£9.00	\$18.00	
Publications			
Bulletin - volume 34	£24.50	\$49.00	
Journal - volumes 65 & 66	£49.00	\$98.00	
Proceedings - volumes 84 & 85	£49.00	\$98.00	
JCM (electronic) volume 5	free	free	
Nonlinearity (EC) volume 15	£40.00		
Nonlinearity (North America) volume 15		\$100.00	
Nonlinearity (rest of the world) volume 15	£51.00		
Journal of Applied Probability - volume 39	£41.50	\$83.00	
Quarterly Journal of Mathematics - volume 53	£75.00	\$140.00	
Math. Proc. Camb. Phil - volumes 131 & 132	£69.50	\$139.00	
Glasgow Mathematical Journal - volume 44	£45.00	\$90.00	
Journal of the European Mathematical Society - volume 4	£27.00	\$54.00	

## YORKSHIRE DIFFERENTIAL GEOMETRY DAY

A Yorkshire Differential Geometry Day will be held on Friday 25 January from 10.30 am to 5.30 pm in the School of Mathematics at the University of Leeds. This is a joint meeting organized by the geometry groups at the Universities of Hull, Leeds and York. Speakers will be Fran Burstall (Bath), James Eells (Cambridge and Warwick), Birte Feix (Cambridge) and Kevin Houston (Leeds). For further information, contact John C. Mathematics. Wood. School of University of Leeds. Leeds LS2 9IT (tel: 0113 2335106, e-mail: J.C.Wood@leeds. ac.uk), or visit the website (http://www. amsta.leeds.ac.uk/pure/geometry/ dgday.html). The day is supported by an LMS scheme 3 grant.

## OPERATOR THEORY DAY IN NEWCASTLE

A one day conference on Operator Theory will be held at University of Newcastle upon Tyne from 9.30 am until 6.00 pm on Saturday 2 March. Invited Professor James speakers include Rovnyak (Virginia University), Professor Joerg Eschmeier (Saarbrucken University) and Dr Catalin Badea (Lille University). You are invited to submit a title for a 30 minute talk. The conference is supported by the LMS. Research students studying at UK universities are encouraged to apply for a contribution towards their expenses. If you are interested in attending the conference, please register your interest by e-mail to Dr Michael Dritschel, Newcastle University (e-mail: M.A.Dritschel@newcastle.ac.uk).

## LONDON MATHEMATICAL SOCIETY 2001-2002 COUNCIL

As a result of the annual election, membership of the Council is the following:

President

Vice-Presidents

Treasurer

Council & General Secretary

Meetings & Membership Secretary

Publications Secretary

Librarian

Members-at-Large

Professor J.T. Stuart, FRS (Imperial College)

Professor T.J. Lyons, FRSE (Oxford)

Professor A.J. Scholl (Cambridge)

Professor A.O. Morris (Aberystwyth)

Professor J.S. Pym (Sheffield)

Dr S.A. Huggett (Plymouth)

Professor E.C. Lance (Leeds)

Professor N.L. Biggs (LSE)

Professor A.G. Chetwynd (Lancaster)

Professor R.T. Curtis (Birmingham)

Professor M.M. Dodson (York)

Professor K.J. Falconer, FRSE (St Andrews)

Professor J. Howie, FRSE (Heriot-Watt)

Dr T.W. Körner (Cambridge)

Professor M.A.H. MacCallum (Queen Mary)

Dr M. Mathieu (Queen's University of Belfast)

Dr S.E. Rees (Newcastle)

Professor M.A. Reid (Warwick)

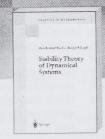
Professor I.A. Stewart (Leicester)

Professor A.M. Stuart (Warwick)

#### THE SSICS IN MATHEMATICS









H. Hasse

## **Number Theory**

From the reviews: "...a fine book ... treats algebraic number theory from the valuation-theoretic viewpoint. When it appeared in 1949 it was a pioneer. Now there are plenty of competing accounts. But Hasse has seomething extra to offer. This is not surprising, for it was he who inaugurated the local-global principle (universally called the Hasse principle). This doctrine asserts that one should first study a problem in algebraic number theoy locally, that is, at the completion of a vaulation. Then ask for a miracle: that global validity is equivalent to local validity. Hasse proved that miracles do happen in his five beautiful papers on quadratic forms of 1923-1924. ... The exposition is discursive. ... It is trite but true: Every number-theorist should have this book on his or her

Irving Kaplansky in Bulletin of the American Mathematical Society,

2002. Reprint of the 1st ed. 1980. XX, 638 pp. 49 figs. Hardcover € 34,95; £ 26,-; sFr 62,- ISBN 3-540-42749-X

N.P. Bhatia, G.P. Szegö

## Stability Theory of **Dynamical Systems**

From the reviews: "This is an introductory book intended for beginning graduate students or, perhaps advanced undergraduates. ... The book has many good points: clear organization, historical notes and references at the end of every chapter, and an excellent bibliography. The text is well-written, at a level appropriate for the intended audience, and it represents a very good introduction to the basic theory of dynamical systems."

Mathematical Reviews 1972

2002. Reprint of the 1st ed. 1970. XIV, 226 pp. Softcover € 34,95; £ 26,-; sFr 62,- ISBN 3-540-42748-1

R.R. Switzer

## **Algebraic Topology**

From the reviews: "The author has attempted an ambitious and most commendable project. He assumes only a modest knowledge of algebraic topology on the part of the reader to start with, and he leads the reader systematically to the point at which he can begin to tackle problems in the current areas of research centered around generalized homology theories and their applications. ... The author has sought to make his treatment complete and he has succeeded. The book contains much material that has not previously appeared in this format. The writing is clean and clear and the exposition is well motivated. ... This book is, all in all, a very admirable work and a valuable addition to the litera-

> S.Y. Husseini in Mathematical Reviews, 1976

> > Springer

2002, Reprint of the 1st ed. 1975. XVI, 526 pp. Softcover € 34,95 £ 26,-; sFr 62,- ISBN 3-540-42750-3

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#### LETTER TO THE EDITOR

Dear Madam Editor,

G.H. Hardy may have had some strange views, as Prof. Lyons reminds us in his review of the recent Hardy lectures (October *Newsletter*, p. 6), but would Hardy really have been so dismissive of philosophers as to accuse them of having 'second class minds'? Hardy's admiration for Bertrand Russell, for example, is just one reason for thinking it most unlikely.

The nearest I can find in A Mathematician's Apology is on page 61: there is no scorn more profound, or on the whole more justifiable, than that of the men (sic) who make for the men who explain. Exposition, criticism, appreciation, is work for second-rate minds. Here at any rate Hardy's list of the second-rate does not include philosophy.

Again, Prof. Lyons tells us that Hardy said 'the best mathematics is useless'. I find in the Apology, page 89: . . . if a chess

problem is, in the crude sense, 'useless', then that is equally true of most of the best mathematics; . . . which puts the matter in a somewhat different light.

Perhaps Prof. Lyons' versions are indeed somewhere in Hardy's writings. I hope not. I hope that the quotations I have mentioned are the correct ones because I think they give a truer picture of Hardy's views; strange perhaps, but thoughtful

> Sincerely yours J.R. Higgins France

Dear Editor,

Professor Higgins is of course right and I did misplace Hardy's scorn so thank Professor Higgins for setting the record straight. I am sure we all agree Persi Diaconis did a great job.

T.J. Lyons

## MODEL THEORY AND MODEL THEORETIC ALGEBRA MEETING

School of Mathematics & Statistics University of Birmingham 28 February to 2 March 2002

The following people have expressed an interest in the meeting and are probable speakers:

- Andreas Baudisch (Berlin)
- Ludomir Newelski (Wrocław)
- Enrique Casanovas (Barcelona)
- Zoe Chatzidakis (Paris)
- Max Dickman (Paris)
- Franz-Viktor Kuhlmann (Saskatoon)
- Salma Kuhlmann (Saskatoon)
- Daniel Lascar (Paris)

- Luc Belair (Quebec)
- Françoise Point (Mons)
- Bruno Poizat (Lyon)
- Charlie Steinhorn (Vassar)
- Frank Wagner (Lyon)
- Alex Wilkie (Oxford)Carol Wood (Wesleyan)
- Boris Zillber (Oxford)

Please contact Dr R.W. Kaye (R.W.Kaye@bham.ac.uk) before **31 January** if you will be attending the meeting. An accommodation deposit of £50 (£25 for research students) is required (cheques payable to the University of Birmingham and sent to Dr R.W. Kaye, School of Mathematics & Statistics, University of Birmingham, Edgbaston, Birmingham B15 2TT). Some support for postgraduate students may be available. Titles and further details will appear on the website (http://www.mat.bham.ac.uk/R.W.Kaye) in due course.

## LONDON MATHEMATICAL SOCIETY MIDLANDS REGIONAL MEETING

## UNIVERSITY OF BIRMINGHAM SCHOOL OF MATHEMATICS & STATISTICS

## Wednesday 27 February 2002

2.00 pm	Arrival and Poster Display (Physics Bridge, Watson Building)
2.30 pm	Dr P.M. Neumann (Oxford) Infinite Jordan Groups
3.40 pm	Dr A.D. Gardiner (Birmingham) Why Should the Mathematical Community Care About Olympiads?
4.40 pm	Tea (Physics Bridge, Watson Building)
5.15 pm	Professor A.J. Macintyre (Edinburgh) Prospects for Model Theory
6.15 pm	Reception, Prize giving for the best Postgraduate Poster (Physics Bridge, Watson Building)

Please let Richard Kaye (R.W.Kaye@bham.ac.uk) know if you will be attending the meeting. In particular, he needs to know in advance if you will be attending the dinner (between £15 and £20, not including drinks).

Dinner (University, Staff House)

7.00 pm

Also please inform Richard Kaye if you would like (or if you have been told you would like) to display a poster at the meeting.

During the three days following this meeting there will be an LMS sponsored mini-conference (also at Birmingham) on *Model Theory and Model Theoretic Algebra*. For further information visit the website (http://www.mat.bham.ac.uk/R.W.Kaye/models2002/).

Some funds are available to contribute in part to the expenses of members of the Society or research students who wish to attend the meeting. Requests for support should be addressed to the Meetings and Membership Secretary, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (lms@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.

## UNIVERSITY OF OXFORD Mathematical Institute

## BROOKE BENJAMIN TRAVEL BURSARY

Donations from colleagues and friends of the late T. Brooke Benjamin, FRS [Sedleian Professor of Natural Philosophy, 1979-1995] have enabled the University to establish a fund, to be known as the Brooke Benjamin Memorial Fund, for the encouragement of the study of experimental or theoretical mechanics at postgraduate level within the University.

With effect from December 2001, a Brooke Benjamin Travel Bursary will be awarded every two years to a research student in experimental or theoretical mechanics. It is anticipated bursaries will be in the region of £300 and will be used:

- in the case of an Oxford student, for approved travel for research purposes, or
- in the case of an external student, to support visits to the Mathematical Institute in Oxford for research purposes. In the case of non-UK candidates wishing to visit Oxford, preference will be given to those from the US and France, although other EU nationals will not be excluded.

The administration of the fund, although under the direction of the Mathematical and Physical Sciences Board, will be the responsibility of the Mathematical Institute. [Applications will be considered by a committee comprising Professor J.M. Ball, Sedleian Professor of Natural Philosophy, Professor T. Mullin, Professor of Physics, Manchester University, and Dr H. Ockendon, Director of OCIAM.]

Applications, including the following documentation, should be sent to the Administrator, Mathematical Institute, 24 - 29 St. Giles', Oxford OX1 3LB by 31 January 2002:

- i) a letter outlining the use to which the bursary would be put;
- ii a detailed CV:
- iii) a letter of support from someone familiar with the applicant's research e.g. supervisor, head of department, etc.

CLOSING DATE: 31 JANUARY 2002

Mathematical Institute, University of Oxford, 24-29 St Giles', Oxford OX1 3LB Enquiries: +44 (0) 1865 273525; Fax: +44 (0) 1865 273583 http://www.maths.ox.ac.uk

## VISIT OF PROFESSOR H. JARCHOW

Professor Hans Jarchow of the University of Zürich, Switzerland, will visit the UK in March with the support of an LMS scheme 2 grant. He will give three lectures as follows:

• Order bounded operators on classical function spaces - Tuesday 12 March, 4.30 pm, Room 3, 25 St James's, Mathematics Department, Goldsmiths College, London. For further information contact Professor Cho-Ho Chu (c.chu@gold.ac. uk).

· Order boundedness of multiplication

operators - Wednesday 13 March, 2.30 pm, Room 314, Mathematics Department, University of Reading. For further information contact Professor John Wright (j.d.m.wright@reading.ac. uk).

• Composition operators on classical spaces of analytic functions - Tuesday 19 March, 3.30 pm, Yorkshire Functional Analysis Group, Room G, School of Mathematics, University of Leeds. For further information contact Professor Garth Dales (pmt6hgd@leeds.ac.uk).

1 1 0 0

# LONDON MATHEMATICAL SOCIETY BRITISH WOMEN IN MATHEMATICS DAY Wednesday 9 January 2002

10.30 am Coffee and Registration

11 am - 1 pm Morning session - four half hour talks by

Elizabeth Mansfield

Alice Miller Susanne Mischke Reidun Twarok

1 pm - 2 pm Lunch

2 pm - 3 pm Afternoon Session - four half hour talks by PhD

students on their work

4 pm Tea

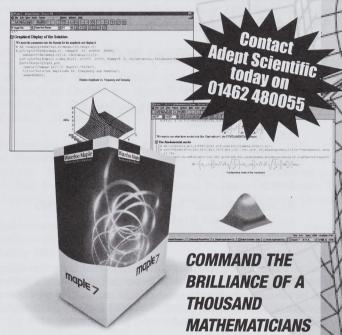
The day is free for graduates and undergraduates with help available for travelling expenses. There will be a charge of £5 for others to cover coffee, tea and a buffet lunch. All are welcome, but those intending to come should contact Frances Spoor at the London Mathematical Society (tel: 020 7927 0800, e-mail: spoor@lms. ac.uk) by 4 January 2002 as numbers are limited.

While women are specifically encouraged to attend, men are also welcome. The programme should be of interest to third and fourth year undergraduates considering a career in mathematical research. There will be plenty of opportunity for informal discussion with practising women mathematicians.

The meeting will be held in the Hardy Room at De Morgan House, 57-58 Russell Square, London WC1B 4HS. Please contact Frances Spoor (spoor@lms.ac.uk) for further details.

# **Introducing MAPLE 7**

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http://maple.adeptscience.co.uk www.adeptstore.co.uk

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## REFLECTIONS OF A FORDER LECTURER T.W. Körner

So far as I and my wife are concerned. our recollections of our trip can be summarised as one long sigh of pleasure. The snow falling at Arthur's pass. Wellington harbour, the majestic dance of the Auckland traffic lights, the fish (to be eaten), the birds (to be glimpsed). the impish sense of humour of your randomly placed road signs announcing 15 kilometers of bends (surely it would be cheaper to indicate the occasional straight bits), the breath-taking beauty of the northern coastline, the hospitality, the public toilet that played music to its users, the botanic gardens each more magnificent than the last, the silence in the forests, the actual room where Rutherford did his undergraduate experiments.

However, your President does not want me to talk about the marvelous time I had. He feels, no doubt rightly, that a six-week visit to New Zealand should have enabled me to discover the problems facing the New Zealand mathematical community and to work out what you should do about them. Since, contrary to his expectations, I have nothing very useful to say I shall do what all experienced teachers do. That is, I shall waffle a bit and hope that nobody notices the lack of content.

Any confidence I might have in my views is further undermined by the realisation that New Zealand is different. In Europe the museums exhibit acres of loot extorted by means of economic and military power. In New Zealand they show the typewriter used by the grandfather of Mr X and the feathered cloak worn by the grandfather of Mr Y. In the US, properly reverent guides show you the fine buildings where great statesmen, soldiers and intellectuals drafted founding documents which were to be a

beacon for the world. In New Zealand. you wander at will over a lawn where a group of well meaning men tried to do the best they could for the communities they felt responsible for and ended up with a founding document.

In spite of the rugged particularity of New Zealand and its peoples, the worries of your mathematics departments seemed very familiar. There are two pieces of advice that I feel called upon to give - one urging you to follow British practice and the other urging you not to.

The emerging British practice that I wish to commend to you is for universities to encourage school children to take an interest in mathematics. Since it is unnecessary to reinvent the wheel, the reader should locate NRICH, PLUS and their 'Millennium project' siblings on the web. You will find, I hope material to extend the mathematical experience of children of all ages. The material is both carefully crafted and free.

The British practice that I wish to advise against is the relentless spread of competition between universities. New Zealand is a small country and, if you divide your mathematical world into mutually competing fragments, the resulting splinter groups may not be large enough to form genuine mathe-

matical communities.

Institutions like the Forder lectureship are very important. Knowledge travels better on foot than on paper. Let me conclude by thanking everybody who made my trip and that of my wife such a wonderful experience. Thank you New Zealand.

These reflections appear in the New Zealand Mathematical Society's Newsletter: we are grateful to them for allowing us to publish them.]

## RECORDS OF PROCEEDINGS AT MEETINGS

#### ANNUAL GENERAL MEETING

held on *Friday 23 November 2001* at University College London, Professor J.T. STU-ART, FRS, in the Chair. There were present about 76 members and visitors. Dr A.R. Pears and Dr W. Stephenson, Scrutineers, collected ballot papers.

The Treasurer, Professor A.O. Morris, presented his annual report, which is published in the *Newsletter*. Messrs Baker Tilly were appointed as auditors.

Nineteen people were elected to Ordinary Membership: N. Achilleos, G. Argiris, S.L. Attridge, P. Butkovic, A.G. Cox, A.G. Fish, Y. Fu, B. Leimkuhler, F. Neumann, C-K Ng, S.V. Novak, M.J. Prickett, W.P. Richardson, A.M. Rucklidge, K.J. Sandiford, F.M. Shareef, R.M.H. Taillefer, S.M. Thomas, K. Zhang; and four were elected to Associate Membership: T.D. Browning, M.E. Kambites, H. Klemm, S. Man. Three members signed the book and were admitted to the Society.

The Records of the Proceedings at the Society Meetings held in Manchester on 6 July, and in Bristol on 12 September 2001, were signed as a correct record.

Professor J.F. Toland gave a lecture entitled 'Complex variables in the variational theory of water waves'.

After tea, the Scrutineers announced the election results. The following Officers and Members of Council were elected: President: J.T. Stuart, FRS; Vice-Presidents: T.J. Lyons, FRSE, A.J. Scholl; Treasurer: A.O. Morris; Council and General Secretary: J.S. Pym; Meetings and Membership Secretary: S.A. Huggett; Publications Secretary: E.C. Lance; Librarian: N.L. Biggs; Members-at-Large for two years: R.T. Curtis, J. Howie, FRSE, M.A.H. MacCallum, M. Mathieu, M.A. Reid, I.A. Stewart. The members elected to the Nominating Committee for 2001 were: E.G. Rees, FRSE, J.F. Toland, FRS. Council membership is completed by the following who were elected for two-year terms in 2000: A.G. Chetwynd, M.M. Dodson, K.J. Falconer, FRSE, T.W. Körner, S.E. Rees, A.M. Stuart.

The President announced that Professor J.A. Green, FRS, FRSE, was unable to attend the meeting to collect his De Morgan Medal due to ill health. On behalf of the Meeting the President wished him well. The President, on Council's behalf, presented certificates to 2001 Society Prizewinners: Senior Whitehead Prize: Professor D.W. Moore; Berwick Prize: Dr M.P.F. du Sautoy; Whitehead Prizes: Professor J.R. King, Dr M.L. McQuillan, Dr A.N. Skorobogatov, Dr V.P. Smyshlyaev.

Professsor A.S. Fokas gave the Naylor Prize Lecture on 'Differential forms, spectral theory and boundary value problems'.

After the meeting, a reception was held at De Morgan House, followed by the Annual Dinner, which was held at The British Museum, and attended by 71 people.

#### REPORT ON THE LMS MEETING ON 23 NOVEMBER 2001

The two lectures were devoted to differential systems, linear and nonlinear. Professor J.F. Toland, FRS (University of Bath) spoke on 'Complex variables in the variational theory of water waves' and was followed by Professor A.S. Fokas (ICSTM, but soon to join the University of Cambridge), who gave the Naylor Prize Lecture on the topic of 'Differential forms, spectral theory and boundary

value problems'.

John Toland's lecture discussed aspects of the classical Stokes-wave problem from hydrodynamics in the context of complex analytic function theory. To cater for the wide audience, four topics were presented in the form of self-contained cameos each of which developed its material from first principles. The topics were: the problem of analytic continuation of the velocity field of a Stokes wave; a free-boundary-value problem dual to the Stokes-wave problem; the problem of classifying stagnation points; and the relation between critical points of variational principles and the existence of Stokes waves. The theory involved various aspects of potential theory for functions satisfying nonlinear boundary condition in the plane.

Thanasis Fokas started by reviewing three important but seemingly unrelated

topics:

(a) the classical transform method for solving PDE's and the Wiener-Hopf technique;

(b) the Ehrenpreis fundamental principle, which guarantees the existence of certain integral representations for the solution of linear PDEs;

(c) the inverse scattering transform for solving nonlinear integrable PDEs.

He then introduced a new method which appears to give a unification as well as a significant extension of the above three topics. For a PDE in two dimensions, this method is based on the existence of an exact differential form, on associated spectral analysis and on the analysis of a global integral relation. The so-called Riemann-Hilbert problem, as well as certain invariant transformations, play a crucial role. Illustrations of the method included the solution of the nonlinear Schrödinger equation on the half line.

Both lectures were much appreciated and attracted substantial discussions. A reception at De Morgan House and the Annual Dinner (at the British Museum!)

then followed.

J.T. Stuart President

## TOPOLOGY, GEOMETRY AND QUANTUM FIELD THEORY

A symposium on Topology, Geometry and Quantum Field Theory will be held in Oxford from 24-29 June 2002. Geometry and quantum physics developed in parallel since the recognition of the central role of non-abelian gauge theory in elementary particle physics in the late seventies and the emerging study of supersymmetry and string theory. The topics of this symposium will be centred on string theory, M-theory, and quantum gravity on the one hand, and K-theory, elliptic cohomology, quantum cohomology and string topology on the other. Its purpose is to bring experts in topology, geometry and theoretical physics together.

Invited speakers who have provisionally accepted are Sir Michael Atiyah (Edinburgh), R. Cohen (Stanford), R. Dijkgraaf (Amsterdam), M. Hopkins (MIT), M. Kontsevich (IHES), D. McDuff (SUNY), D. Sullivan (CUNY), S. Stolz (Notre Dame) C. Teleman (Cambridge), G. Wilson (King's College London), E. Witten (IAS Princeton). The symposium organizer is U. Tillmann (Oxford). Please register your interest with the Ms Laura Mildenhall (e-mail: mildenha@maths.ox.ac.uk). The symposium is supported by an LMS conference

grant.

## ICM - 2002 Plenary and Invited Speakers

Plenary Speakers

Alon, Noga (Israel) Arnold, Douglas Norman (USA) Bressan, Alberto (Italy) Caffarelli, Luis Angel (USA) Chang, Sun-Yung Alice (USA) Donoho, David Leigh (USA) Faddeev, Ludwig Dmitrievich (Russia) Goldwasser, Shafi (USA, Israel) Haagerup, Uffe (Denmark) Hopkins, Michael Jerome (USA) Kac, Victor (USA) Kesten, Harry (USA) Kirwan, Frances Clare (UK) Lafforgue, Laurent (France) Mumford, David B (USA) Nakajima, Hiraku (Japan) Siu, Yum-Tong (USA) Taylor, Richard Lawrence (USA)

Invited Lecturers

1. Logic
Bouscaren, Elisabeth (France)
Denef, Jan (Belgium)
Gitik, Moti (Israel)
Lascar, Daniel (France)
Woodin, Hugh (USA)

Tian, Gang (USA, China) Witten, Edward (USA)

2. Algebra
Bondal, Alexei Igorevich (Russia)
Gabber, Ofer (France)
Levine, Marc Noel (USA)
Orlov, Dmitri Olegovich (Russia)
Praeger, Cheryl Elisabeth (Australia)
Rost, Markus (USA)
Sela, Zlil (Israel)
Stafford, J. Toby (USA)
Tamarkin, Dmitry E (USA)

3. Number Theory
Cogdell, James W. (USA)
Cohen, Henri Jose (France)
Fontaine, Jean-Marc (France)
Huber, Annette (Germany)
Kato, Kazuya (Japan)
Kudla, Stephen S. (USA)
Piatetski-Shapiro, Ilya I. (USA)
Rubin, Karl (USA)
Ullmo, Emmanuel B. (USA, France)
Wooley, Trevor Dion (USA)

4. Differential Geometry
Andrews, Benjamin Hardwick (Australia)
Bartnik, Robert (Australia)
Biran, Paul Ian (Israel)
Bray, Hubert Lewis (USA)
Chen, Xiuxiong (USA)
Ding, Weiyue (China)

Li, Peter Wai-Kwong (USA) Long, Yiming (China) Petrunin, Anton (USA) Rong, Xiaochun (USA, China) Schwartz, Richard Evan (USA) Seidel, Paul (France, USA) White, Brian Cabell (USA) Zhang, Weiping (China)

5. Topology
Bestvina, Mladen (USA)
Chekanov, Yuri Vitalievich (Russia)
Furuta, Mikio (Japan)
Giroux, Emmanuel (France)
Hesselholt, Lars (USA)
Ionel, Eleny-Nicoleta (USA)
Teichner, Peter (USA)
Tillmann, Ulrike Luise (UK)
Wang, Shicheng (China)

6. Algebraic and Complex Geometry Esnault, Hélène (Germany) Goettsche, Lothar (Italy) Mukai, Shigeru (Japan) Pandharipande, Rahul Vijay (USA) Pink, Richard (Switzerland) Reid, Miles (UK) Schechtman, Vadim (France) Totaro, Burt (UK)

7. Lie Group and Representation Theory
Delorme, Patrick (France)
Etingof, Pavel I. (USA)
Gaitsgory, Dennis (USA)
Harris, Michael H. (France)
Klyachko, Alexander (Turkey)
Kobayashi, Toshiyuki (Japan)
Mehta, Vikram Bhagvandas (India)
Meinrenken, Eckhard (Canada)
Nazarov, Maxim Leonidovich (UK)
Shahidi, Freydoon (USA)
Vigneras, Marie-France (France)

8. Real and Complex Analysis
Eremenko, Alexandre (USA)
Heinonen, Juha Matti (USA)
Kenig, Carlos E. (USA)
Lerner, Nicolas (France)
McQuillan, Michael Liam (France, UK)
Tao, Terence Chi-Shen (USA)
Thiele, Christoph (USA)
Zelditch, Steven (USA)
Zhou, Xiangyu (China)

9. Operator Algebras and Functional Analysis Alesker, Semyon (Israel) Biane, Philippe (France) Bisch, Dietmar Herbert (USA) Ge, Liming (China) Lafforgue, Vincent G. (France) Latala, Rafal (Poland)

10. Probability and Statistics

Ben Arous, Gérard Albert (Switzerland)
Bertoin, Jean (France)
Bickel, Peter J. (USA)
Bolthausen, Erwin (Switzerland)
Brown, Lawrence D. (USA)
Chen, Mufa (China)
Johansson, Kurt (Sweden)
Lawler, Gregory Francis (USA)
Peres, Yuval (USA)
Pisztora, Agoston (USA)
Speed, Terence Paul (USA)
Zaitsev, Andrei Yurievich (Russia)
Zeitouni, Ofer (Israel)

11. Partial Differential Equations

Ambrosio, Luigi (Italy)
Bahouri, Hajer (Tunisie)
Hong, Jiaxing (China)
Kilpeläinen, Tero (Finland)
Li, Yanyan (USA)
Liu, Tai-Ping (Taiwan, USA)
Maz'ya, Vladimir (Sweden)
Rivière, Tristan Joel (France)
Tataru, Daniel Ioan (USA)
Wang, Xu-jia (Australia)
Wu, Sijue (USA)
Zworski, Maciej (USA)

12. ODE and Dynamical Systems

Chenciner, Alain (France)
Benedicks, Michael (Sweden)
Bonatti, Christian (France)
Feireisl, Eduard (Czech Republic)
Fiedler, Bernold (Germany)
Forni, Giovanni (USA)
Pujals, Enrique Ramiro (Brasil)
Rudolph, Daniel J. (USA)
Shilnikov, Leonid Pavlovich (Russia)
Smillie, John (USA)
Treschev, Dmitry (Russia)

13. Mathematical Physics

Bricmont, Jean (Belgium)
Douglas, Michael Ronald (USA)
Eckmann, Jean-Pierre (Switzerland)
Freed, Daniel S. (USA)
Hori, Kentaro (USA)
Jitomirskaya, Svetlana (USA)
Liu, Kefeng (USA)
Nachtergaele, Bruno (USA)
Nekrasov, Nikita Aleksandrovich (France)
Noumi, Masatoshi (Japan)
Tracy, Craig Arnold (USA)
Wojtkowski, Maciej P. (USA)

#### 14. Combinatorics

Barany, Imre (Hungary, UK) Blokhuis, Aart (The Netherlands) Cornuejols, Gerard (USA) Flajolet, Philippe (France) Linial, Nathan (Israel) Reed, Bruce Alan (France, Canada) Winkler, Peter (USA) Ziegler, Günter M. (Germany)

15. Mathematical Aspects of Computer Science

Arora, Sanjeev (USA)
Feige, Uriel (Israel)
Impagliazzo, Russell Graham (USA)
Kannan, Ravi (USA)
Kitaev, Alexei Y. (USA)
Raz, Ran (Israel)
Spielman, Daniel Alan (USA)

16. Numerical Analysis and Scientific Computing

Cohen, Albert A. (France)
Demmel, James Weldon (USA)
Luskin, Mitchell Barry (USA)
Rannacher, Rolf C. (Germany)
Schwab, Christoph (Switzerland)
Sethian, James A. (USA)
Tadmor, Eitan (USA)

17. Application of Mathematics in the Sciences

Brenier, Yann (France)
Brenner, Michael P. (USA)
E, Weinan (USA, China)
El Karoui, Nicole (France)
Guo, Lei (China)
Hales, Thomas C. (USA)
Kopell, Nancy Jane (USA)
Mielke, Alexander (Germany)
Otto, Felix (Germany)
Quarteroni, Alfio Maria (Switzerland, Italy)
Xin, Zhouping (Hong Kong)
Yan, Jia-an (China)

## 18. Mathematics Education and Popularization of Mathematics

Dorier, Jean-Luc (France) Hansen, Vagn Lundsgaard (Denmark) Xiao, Shutie (China)

Panel Group 1

De Lange, Jan (The Netherlands) Kaiser, Gabriele (Germany) Leung, Frederick Koon-shing (Hong Kong)

Yaschenko, Ivan (Russia)

Panel Group 2

Halic Group 2 Ball, Deborah Loewenberg (USA) Hoyles, Celia Mary (UK) Jahnke, Hans Niels (Germany) Movshovitz-Hadar, Nitsa (Israel)

## 19. History of Mathematics

Bottazzini, Umberto (Italy) Epple, Moritz (Germany) Qu, Anjing (China)

For further information visit the website (http://www.icm2002.org.cn/).

## GRANTS FOR ATTENDING ICM 2002

Council of the London Mathematical Society has set aside a sum of money to help Members of the Society normally resident in the UK to attend the International Congress of Mathematicians in Beijing.

Applications for LMS grants may be made by three categories of people.

(a) Those who have applied for Royal Society grants but were unsuccessful may simply submit copies of their Royal Society applications.

(b) Anyone who has obtained a Royal Society grant but considers it very inadequate may submit a copy of the original application together with a case for the LMS supplementing it (but applicants should realise that neither the Royal Society nor the LMS grants are likely to cover the whole cost of attending the ICM).

(c) Those who are ineligible for Royal Society grants may apply on forms obtainable from the address below, or from the Society's website (http://www.lms.ac.uk).

Applications should be sent to The Administrator, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS to arrive before **28 February 2002**. They will be considered by a Council Subcommittee and results should be known by 22 March 2002.

J.S. Pym Council and General Secretary

#### WORKSHOP ON QUANTUM TOPOLOGY

A workshop on Quantum Topology will be held on 18-22 March 2002 at the Mathematics Research Centre, University of Warwick. The workshop will focus on 3dimensional topology and its interaction with topological quantum field theory. The organisers for the event are Stavros Garoufalidis and Colin Rourke. For registration and further information contact Peta McAllister. Business Manager. Mathematics Research Centre, University of Warwick, Coventry CV3 7AL (tel: 024 7653 4403, fax: 024 7652 3548, e-mail: peta@maths.warwick.ac. uk), or visit the website (http://www. maths.warwick.ac.uk).

## **ROYAL COMMISSION FOR THE EXHIBITION OF 1851**

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Full details, including an application form may be downloaded, are available at our website:

## www.royalcommission1851.org.uk

The closing date for applications is 1 March 2002.

## GAMM SEMINAR ON MICROSTRUCTURES

The Vienna GAMM Seminar on Microstructures being held on 18-20 January 2002 at Vienna University of Technology, Austria, focuses on Computational Material Sciences, Micromagnetism, Microstructural Materials, involving Plasticity, Damage, Phase Transitions, Variational and Relaxation approaches. The Chairmen are C. Carstensen (Vienna), K. Hackl (Bochum) and T. Schrefl (Vienna).

Details of a (moderate) fee for tea and coffee (to be paid in Euro after arrival) as well as of a meeting point on Tuesday night etc. will be fixed as soon as possible. Please contact Ursula Schweigler (ursula.schweigler@tuwien.ac.at) for assistance on your travel arrangements or accommodation reservations in Vienna. The website (http://gamm.tuwien.ac. at/seminar2002/) maintains current and latest information.

## INTERNATIONAL CONGRESS OF MATHEMATICIANS (ICM 2002) BEIJING, CHINA, 20 - 28 AUGUST 2002

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To register your interest and for full details and a booking form, please contact Graziano Fontanini, Lotus Conferences & Incentives Ltd., Hobbs Court, 2 Jacob Street, London SE1 2BG, Tel: 020 7962 9030, Fax: 020 7334 0997, E-mail: conferences@lotusgroup.co.uk, Website: www.lotusconferences.co.uk

## CENTRO DE MATEMÁTICA DA UNIVERSIDADE DE COIMBRA

## **POSTDOCTORAL POSTS**

The Centro de Matemática da Universidade de Coimbra (CMUC) (http://www.mat.uc.pt/~cmuc/) invites applications for a limited number of postdoctoral fellowships, tenable for up to 12 months from October 2002. Applicants should have a research interest in one of the following areas:

- Analysis
- Algebra
- Numerical Analysis and Optimization
- Probability Theory and Statistics
- Geometry/Topology
- History of Mathematics

Applications consisting of *curriculum vitae*, list of publications, research plans and two letters of recommendation should be sent to: Director, Centro de Matemática da Universidade de Coimbra, Apartado 3008,001-454 Coimbra, Portugal, not later than **31 March 2002**. The monthly fellowship amount is around 1350 Euros (Tax Free).



## LONDON MATHEMATICAL SOCIETY

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For further information on how to advertise contact: Susan Oakes, Editor, London Mathematical Society, De Morgan House, 57 - 58 Russell Square, London WC1B 4HS (tel: 020 7637 3686, fax: 020 7323 3655, e-mail: oakes@lms.ac.uk) or look on the web (http://www.lms.ac.uk).

## MATHEMATICS FOR SOLID AND STRUCTURAL MECHANCS

A joint IMA, LMS, EPSRC meeting was held at UMIST, Manchester, on 20 September 2001, with sponsorship also from UMIST and the Royal Academy of Engineering. This one-day meeting was arranged to encourage research activity in Solid and Structural Mechanics within the Mathematics and Engineering Communities and to promote a greater awareness among engineers of newer mathematical techniques and concepts. It was arranged as part of a developing collaboration between the LMS and the IMA on mathematical subjects of common interest. Also it was part of the EPSRCsponsored 'connectivity' between mathematics and other disciplines, in this case engineering.

There were eleven lectures in total, five from engineering departments and six

from mathematics.

Jay Sivaloganathan (Mathematics, Bath) spoke on Nonlinear Elasticity, emphasising variational calculus and polyconvex functions and leading to a discussion of fracture and discontinuities. Michael Thompson's (Engineering, UCL) talk on mathematical dynamics and engineering structures included the role of homoclinic orbits and spatial chaos. Gero Friesecke (Mathematics, Warwick) discussed 'Bending and buckling of plates and nanotubes', and spoke of 'singularlimit' problems for nonlinear partial differential equations. His lecture led from more conventional elasticity to nanotubes and the atomic forces there involved.

The Kinematics of, for example, 'deployable radar structures' was the topic of Sergio Pellegrino (Engineering, Cambridge), with reference to spacecraft and 'space' structures and to medical devices. Quaternions featured! On the other hand John Willis (Mathematics, Cambridge) took 'Problems in the dynamics of fracture' as his subject, describing the difficulty of identifying a suitable theory in three dimensions but indicating progress in the understanding of crack

front waves (of soliton-like behaviour).

Gordon Williams (Engineering, ICSTM), treated 'The Vital Role of Analytical Solutions', emphasising the importance they can play in the evaluation of the results (sometimes ambiguous) of finite-element calculations. The exposition of John Ball (Mathematics, Oxford), which followed, was quite relevant for its predecessor, in that Ball emphasised the importance of the chosen function space as a part of the mathematical model; an inappropriate function space can lead to incorrect or invalid solutions.

Phil Withers (Materials Science Centre. Manchester) spoke on 'residual stress and damage mapping' with the aim of developing 'better fatigue and fracture codes' with good 'estimates of component lives'. The richness of new experimental data can be used to alter significantly and improve numerical models. He was followed by David Abrahams (Mathematics, Manchester), whose theme was edgewaves in the non-destructive evaluation of engineering components. For the scattered field that arises from irradiation of a body, one can with care evaluate the location, size and nature of defects, a nontrivial inverse problem. By way of example. Abrahams discussed edge-waves on fluid-loaded structures, indicating that analytic and asymptotic methods have a significant role to play in comparison with numerical schemes.

Richard Craster (Mathematics, ICSTM) expanded on several topics where mathematical ideas can have a impact on engineering. One concerned lava domes in Alaska and the prediction of their development, an example of visco-plastic flow. On the other hand his treatment of composites led to regular, doubly-periodic structures, a natural place for elliptic functions. Following this talk was that of Norman Fleck (Engineering, Cambridge), whose subject was 'size effects in plasticity'. He referred especially to crystalline solids with a typical dimension of a few

microns, and to elastic composites, where the length scale is associated with the heterogeneity. Thus a class of phenomenological strain-gradient plasticity theorems was formulated to allow more than one material-length parameter, experimental data suggesting that two distinct such parameters are needed.

In the final period of the meeting Drs Alasdair Rose and Elizabeth Hylton, repthe Mathematics resenting Engineering Programmes of EPSRC. explained ways in which that the Council mechanisms could aid mathematics. In particular, with the current emphasis on 'connectivity' between mathematics and other disciplines, including engineering, the EPSRC is very keen to encourage programmes (such as the LMS Scheme 6) that aid research collaboration between mathematicians and others. Moreover the EPSRC has a strong interest in instructional courses of more-advanced mathematics for engineers, and in supporting activities of IMA, LMS and RSS in this direction. It was mentioned that it was clear from remarks at the recent SIAM-EMS meeting in Berlin that 'connectivity' is alive and well elsewhere in Europe and in North America!

Returning to the topic of Solid Mechanics, I can report the feeling of the meeting that the lectures and discussions had given benefit to 'connectivity' between mathematics and engineering, at least in this field. An added bonus for the LMS and IMA was the good collaboration between them in the arrangements for the meeting.

In conclusion Steve Reid (President of IMA) and his colleagues at UMIST were thanked for the fine detailed arrangements, and the EPSRC representatives for their considerable personal support of Mathematics in association with Engineering.

J.T. Stuart President



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# Winning Ways for Your Mathematical Plays Volume 2, Second Edition

Elwyn R. Berlekamp, John H. Conway, Richard K. Guy, Editors

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#### THE MATHEMATICAL ASSOCIATION

The MA is a long-established organisation, just a few years younger than the LMS. It was founded in 1871 as the Association for the Improvement of Geometrical Teaching (how the wheel turns!!) and changed its name in 1897. There is a considerable overlap between the memberships of the LMS and the MA, including two recent MA Presidents in Tony Gardiner and Chris Robson. The current MA Council also includes LMS members. It is therefore unsurprising that our two organisations have similar aims in many areas.

At times the MA and the LMS emphasise different issues - a natural consequence of the MA's need to represent primary and secondary school teachers as well as the academic viewpoint. We value our broad spectrum of members and work to build bridges between the various sectors of education. It is axiomatic that, if the MA operates successfully in the school sector, then members of the LMS will get better educated students to work with. (On the other hand, it is not fair to blame the MA if some students fail to live up to mathematical expectations!)

The MA organises a wide range of activities and in the following sections a brief description is given but with particular emphasis on aspects that may be of greater interest or relevance to members of the LMS.

The MA publishes some seven different periodicals, each aimed at a particular clientele. MA News is a glossy, thriceyearly, members' newsletter. Primary Mathematics and Equals are published termly, the former for Primary teachers and the latter for teachers of pupils with special needs in mathematics. We also have two termly periodicals aimed at pupils: Mathematical Pie, famous for its elementary puzzles and problems is still alive after many, many years, while SymmetryPlus is a glossy publication for slightly older pupils. Our two most widely-circulated journals are Mathematics in School and The Mathematical Gazette. MiS comes out five times a year and is aimed at secondary school teachers, particularly those dealing with pupils in the 11-16 age-range. The Gazette is the journal most likely to interest LMS members. It was first published in 1894, when it was described as a 'terminal journal' - though with 504 issues so far, any thoughts of its termination would be misplaced. It is likely that many LMS members are familiar with the Gazette, straddling as it does, the schooluniversity interface. There is a rich variety of Articles and Notes to stimulate the active reader and a very strong Reviews section.

The MA also publishes books about mathematics and mathematics teaching. They are predominantly aimed at school teachers, to help them reflect, to improve their mathematical knowledge, to provide ideas and to promote good practice although 50% Proof: an anthology of mathematical humour, provides amusement for mathematicians at every level!

The MA tries very hard to serve the mathematical community by encouraging dialogue with government. Recent campaigns include issues relating to Able Pupils (the enrichment debate) and the A/AS level 'disaster'. We have regular meetings with QCA, which have proved to be a useful two-way channel, although by no means perfect.

The MA also organises courses and conferences. Recent initiatives include modular courses for teachers as well as contracted work for Texas Instruments. We will shortly be 'testing the water' with a couple of one-day conferences under the banner of 'Gifted and Talented'. However, our main event is still the Annual Conference, which provides a focus for a wide range of mathematicians and mathematics teachers to meet, hear talks, include in activities and widen their horizons.

Around the country, the MA has a number of branches, some of which are more vigorous than others. Generally, a branch organises an annual programme of at least four meetings which can take a variety of forms, from conventional lectures to very busy workshops. As with our publications, details of the locations of the branches are contained on our web site.

A less well-known aspect of the MA is our library, open to all members on request. This is housed in the library of the University of Leicester, close to our headquarters. Many of the books in the library come from bequests, which has resulted in one of the UK's greatest accumulations of school textbooks from the mid-nineteenth century to the present day. In addition to this incredible collection, we have some 400 rare books, which are housed under controlled conditions in the University's Special Collection, where MA members can access them.

It is hoped that the foregoing gives a clear idea of what the MA is and what we have to offer. We are a dynamic body (although not equally so in all its spheres of activity) that relies on its membership to survive. We always welcome new members and hope that our overlap with the LMS will increase as a result of this article.

If you want to learn more about the Mathematical Association, including details of our books and details of how to join, please visit our web-site (www.ma. org.uk).

## NORTH BRITISH FUNCTIONAL ANALYSIS SEMINAR

A meeting of the North British Functional Analysis Seminar will be held at the Department of Mathematics, University of Newcastle upon Tyne, from 2.30 pm until 5.00 pm on Friday 1 March. The speaker will be Professor Aharon Atzmon (Tel Aviv University). The meeting has financial support from the London Mathematical Society. For further information contact Dr Zinaida Lykova, Newcastle University (e-mail: Z.A.Lykova@ncl.ac.uk).

#### INTERNATIONAL CENTRE FOR THEORETICAL PHYSICS Mathematics Activities in 2002

School and Conference on Probability Theory - 13 - 31 May

The Directors for this event are G. Lawler (Duke University, Durham, NC, USA), C.M. Newman Courant Institute, New York, USA), S.R.S. Varadhan (Courant Institute, New York, USA). The local organiser is C.E. Chidume. The deadline for requesting participation is a.s.a.p. Further details are available on the website (http://www.ictp.trieste.it/cgibin/ICTPsmr/mkhtml/smr2html.pl?smr14 07/Announcement).

School and Conference on Algebraic K-theory and its Applications - 8 - 26 July

The Directors for this event are M. Karoubi (Université de Paris VII, France), A.O. Kuku (ICTP), C. Pedrini (Università degli Studi di Genova, Italy). The local organizer is A.O. Kuku. The deadline for requesting participation is 28 February 2002. Further details are available on the website (http://www.ictp.trieste.it/cgibin/ICTPsmr/mkhtml/smr2html.pl?smr14 18/Announcement).

School and Conference on Intersection Theory and Moduli - 9 - 27 September

The Directors for this event are E. Arbarello (Scuola Normale Superiore, Pisa, Italy), G. Ellingsrud (University of Oslo, Norway), L. Göttsche (ICTP). The local organiser is L. Göttsche. The deadline for requesting participation is 15 April 2002. Further details will soon be available on the website (http://www.ictp.trieste.it/cgibin/ICTPsmr/mkhtml/smr2html.pl?smr14 26/Announcement).

For further details on the events listed above contact Ms S.B. Laurenti, Mathematics Section, The Abdus Salam International Centre for Theoretical Physics, Strada Costiera 11, I-34014 Trieste, Italy (tel: +39 040 224 0272, fax: +39 040 224 0490, e-mail: laurenti@ictp.trieste.it).

## **CECIL KING TRAVEL SCHOLARSHIP 2002**

The Cecil King Memorial Foundation has established a Cecil King Travel Scholarship in Mathematics to the value of £5000, to be awarded annually to a young mathematician of outstanding promise, to support a period of study or research abroad for a typical period of three months, to enhance his or her studies and further his or her career development. The Scholarship will normally be awarded to a UK or Irish National under the age of 25 years, either registered for or having recently completed a doctoral degree at a UK University. The Travel Scholarship was awarded for the first time in 2001, to Kevin Costello, of Cambridge University.

The award will be competitive and based on a written proposal describing the intended programme of study or research abroad and the benefits to be gained from such a visit, a short presentation and an interview.

The award will be made by the Council of the London Mathematical Society on the nomination of the Cecil King Prize Committee, whose members will be nominated by the Society's Education Committee.

The initial application should include:

1. A completed application form.

2. A short proposal (4 pages maximum) indicating the proposed programme of study abroad, the benefit of such an opportunity in advancing the candidate's studies, and an indication of the Institute that the candidate wishes to visit.

3. A letter of support from the Head of their Department, or from their Research Supervisor.

The initial applications will then be considered by the Cecil King Prize Committee, which will select up to six candidates for interview. Selected candidates will be asked to approach the intended research institution or research leader to be visited, to confirm that a visit would indeed be welcomed if an award were made. They will then be invited to make a brief presentation to the Cecil King Prize Committee on their proposed research and the benefits to be gained from the visit abroad.

Final ratification of the award will require formal confirmation from the institution/person to be visited, indicating their willingness to welcome the visit and to provide whatever supervision and research facilities might be needed. Any supervision or other fees will be paid from the Prize.

At the end of the visit, the student will be expected to write a short report to the Cecil King Memorial Foundation, indicating the activities and benefits gained from the visit.

Application forms may be obtained from the Executive Secretary, The London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (e-mail: lms@lms.ac.uk) or from the Society's website (http://www.lms.ac.uk/activities/ prizes\_com/index.html). The closing date for applications is Friday 8 February 2002. It is hoped that the Scholarship will be awarded on 23 March 2002.

#### ISAAC NEWTON INSTITUTE

The Isaac Newton Istitute for Mathematical Sciences is a national research institute in Cambridge. It aims to bring together mathematical scientists from UK universities and leading experts from overseas for concentrated research on specialised topics in all branches of the mathematical sciences from pure mathematics, applied mathematics, and statistics, to engineering, computer science, theoretical physics and mathematical biology.

At any time there are two visitor programmes in progress, each with about twenty scientists in residence. Included within these programmes are periods of more expanded activity including instructional courses and workshops. Forty-two programmes have now been completed and most recent being Nonlinear Partial Differential Equations, Surface Water Waves and From Individual to Collective Behaviour in Biological Systems.

Call for Proposals

The Institute now invites new proposals for programmes for 2004 onwards. A choice of six month or four month programme is available and short programmes of four weeks duration are invited for July/August each year. These short programmes are intended for more narrowly focussed topics or for subjects that may be at an embryonic stage of development, and for which a longer programme might not be as yet justified.

Proposals should be addressed to the Director, Sir John Kingman, Isaac Newton Institute for Mathematical Sciences, 20 Clarkson Road, Cambridge CB3 0EH. Proposers should state whether they would prefer a four month, six month or four week programme. The Institute is pleased to receive proposals at any time. Proposals for consideration at the next meeting of the Scienctific Steering Committee in May 2002 should be received by 31 January 2001. Further information is available on the web (http://www.newton.cam.ac.uk/call-prop.html).

## ALGEBRAIC HYPERSTRUCTURES AND APPLICATIONS CONGRESS

The 8th International Congress on Hyperstructures Algebraic Applications (AHA 2002) will be held in Samothraki Island (Preferecture of Evros) from 1-9 September 2002. The organising committee would like to invite you to participate and, if you wish to give a talk on the main topics of the Congress. The Congress will cover the following topics: hypergroups, semi-hypergroups, hypergroupoids, hyperrings, hyperfields, hypervectorial Spaces, H<sub>v</sub>-structures, (H<sub>v</sub>groups, semigroups, rings), non-associative and feebly associative hypergroupoids, join spaces, hyperstructures associated to geometric spaces, ordered hyperstructures, fuzzy hyperstructures, hypergraphs, generalisations and applications.

There will be invited lectures and special sessions for talks of 20 minutes. The Proceedings of the Congress will be refered and published. The organisers are: Thomas Vougioklis, Stefanos Spartalis (Democritus University of Thrace). Important dates are: Registration, 31 March 2002; Abstracts, 30 April 2002; Final announcement, 15 June 2002. Email (aha2002@agro.duth.gr) if you are interested in the Congress.

## **SECANTS**

6f **SECANTS** (South England Computational and Algorithmic Number Theory Seminars) will hold its sixteenth meeting in Oxford on Saturday 2 February 2002. The speakers will be Florian Hess (Bristol), Alan Lauder and Richard Pinch (Oxford) (Cheltenham). For more details of the programme, as well as general information about SECANTS, and how to be put on the e-mail mailing list, visit the website (http://www.maths.nott.ac.uk/personal/jec/secants/secants16.html). SECANTS is funded by an LMS scheme 3 grant.

#### LONGSTANDING MEMBERS

The following is a list of mathematicians who have completed fifty years or more of membership of the London Mathematical Society.

			,		
12/12/29	Wright, E.M.	28/06/45	Tropper, A.M.	17/06/48	Bateman, P.T.
04/02/32	Potter, H.S.A.	13/12/45	Rogers, C.A.	18/11/48	Mullender, P.
13/12/34	Meyler, D.S.	21/03/46	Howarth, L.	13/12/48	Fishel, B.
10/12/36	Neumann, B.H.	25/04/46	Rothman, M.	20/01/49	Borwein, D.
16/12/37	Pitt, H.R.	25/04/46	Goldie, A.W.	17/03/49	Kilmister, C.W.
15/12/38	Smithies, F.	23/05/46	Huppert, E.L.	28/04/49	Austin, M.C.
20/04/39	Spencer, D.C.		Rees, D.	17/11/49	Northcott, D.G.
08/02/40	Kendall, D.G.		Higman, G.	15/12/49	Godwin, H.J.
09/05/40	Willmore, T.J.	19/12/46	Ruston, A.F.	19/01/50	Shepherdson, J.C.
17/12/40	Good, I.J.	16/01/47	Macbeath, A.M.	16/02/50	
21/05/42	Edmonds, S.M.	20/02/47	Hay, G.E.	23/03/50	Ponting, F.W.
17/03/43	Dyson, F.J.	20/03/47	Hayman, W.K.		Ackroyd, R.T.
15/06/44	Williams, A.E.		Ghaffari, A.		Patterson, E.M.
16/11/44	Kneebone, G.T.	19/06/47	Cassels, J.W.S.		Chen, D.L.C.
25/01/45	Ollerenshaw, K.	19/06/47	Smith, C.A.B.	17/05/51	Roth, K.F.
25/01/45	Prior, L.E.	27/11/47	Hilton, P.J.		Jackson, M.
25/01/45	Collard, K.	18/03/48	Burkill, H.		Ledermann, W.
01/03/45	Barnard, G.A.	18/03/48	Isaacs, G.L.		Dowker, Y.N.
17/05/45	Henstock, R.	18/03/48	Reade, M.O.		Herszberg, J.
28/06/45	Tutte, W.T.				0, ,



# LONDON MATHEMATICAL SOCIETY ROOMS FOR HIRE

De Morgan House, the administration HQ of the LMS is centrally situated in Russell Square at the heart of London, close to bus, train and tube routes and a variety of hotels.

The LMS have two meeting rooms for hire: the Hardy Room and Committee Room. OHP's, whiteboards and a flipchart are available. A range of sandwich lunches are available along with refreshments of tea and coffee. Academic rates start from as low as £40 for 4 hours.



For further information or to book a room contact LeeAnne Taylor, Receptionist, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (tel: 020 7637 3686, fax: 020 7323 3655, e-mail: taylor@lms.ac.uk). Alternatively the LMS website has details which can be downloaded (http://www.lms.ac.uk).

## TEACHING IN LONDON EVENT 27 and 28 January 2002 Olympia 2, London

The Teacher Training Agency has asked for the following notice to be included.

Teaching is a challenging career and it offers a level of job satisfaction that can't be matched by other professions. As a graduate you will be paid £6,000 to train, which helps to give you a better start. If you decide to teach in mathematics you could be eligible for an extra £4,000. As for your future - it's what you make it. You can choose to follow several career paths, from specialist teaching roles to senior management.

Training Courses: London teacher training providers will be on hand to discuss training options with undergraduates who are making their career choice and graduates/career changers looking for somewhere to train.

Teaching Posts: Local Education Authorities will be available to discuss job opportunities in London with current PGCE students including how they should apply and the attractive packages on offer. Qualified teachers who have taken time out from teaching and are now thinking of returning to the profession will also be able to find out why and how to get back into the classroom.

TILE 2002 will provide as comprehensive an insight into teaching in London as it's possible to give. As well as the specific education and employment facts, we will provide opportunities to talk to teachers about what the job is really like. There will also be a CV Clinic and a seminar programme running throughout both days, offering detailed information and advice on the various aspects of training and teaching in London today. For more information visit the website (http://www.canteach.gov.uk), call the Teaching Information Line (tel: 0845 6000 991, email: ttatile@hillandknowlton.com).

## GRESHAM COLLEGE Spring Semester

Professor Harold Thimberly, Gresham Professor of Geometry, will be giving the following lectures:

24 January, 6 pm 'Future Computers' 21 February, 6 pm 'Conventional Cryptography' 28 February, 6 pm 'Modern Cryptography' 21 March, 6 pm 'Computer Viruses'

Professor Robin Wilson, Visiting Professor in the History of Mathematics, will be giving the following lectures:

16 January, 6 pm 'Euclid' 30 January, 6 pm 'Newton' 6 March, 6 pm 'Euler'

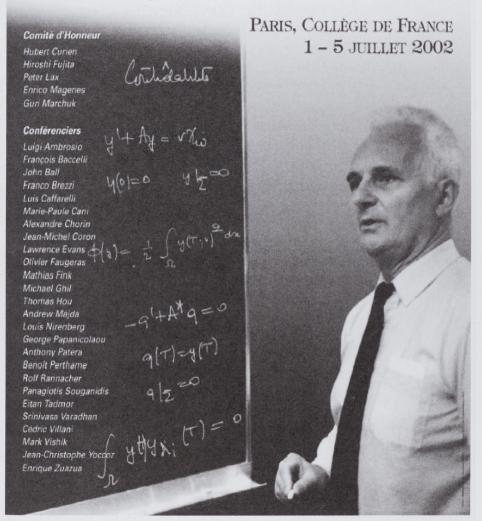
For further information contact Gresham College, Bernard's Inn Hall, Holborn, London EC1N 2HH (tel: 020 7831 0575, fax: 020 7831 5208, e-mail: enquires@gresham.ac.uk, web: http://www.gresham.ac.uk).

#### VISIT OF PROFESSOR I. SKRYPNIK

Professor Igor Skrypnik from the Institute of Applied Mathematics and Mechanics of the Academy of Sciences of Ukraine in Donetsk, Ukraine, will be visiting the UK from 27 January to 10 February, supported by an LMS scheme 5 grant. He will be based at Bristol University. Professor Igor Skrypnik is an expert in nonlinear functional analysis and nonlinear partial differential equations. During his visit he will give the following seminars: University of Bristol (29 January), University of Bath (1 February), University of Glasgow (4 February), Cardiff University (6 February). For further information contact Dr V. Liskevich (e-mail: v.liskevich@bristol.ac.uk) or Dr V. Moroz (e-mail: v.moroz@bristol.ac. uk).

## CONGRÈS DE ATHÉMATIQUES APPLIQUÉES

# JACQUES-LOUIS LIONS



Parrainages : Union Mathématique Internationale et Académie des Sciences. Contacts:

Soutiens: Ministère de la Recherche, CNRS, CNES, INRIA, E-mail: congres, illions@ann.jussieu.fr Collège de France, École Polytechnique, Fax: + 33 1 44 27 72 00

Université Pierre et Marie Curie, SMAI et SMF. Web: http://acm.emath.fr/congres-jllions

## THE INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS



#### FORTHCOMING CONFERENCES

Computational Aeroacoustics University of Greenwich, 9-11 April 2002

Modelling Flows in Oil Reservoirs Cambridge, 15-17 April 2002

**Applications of Geometric Algebra** Trinity College, Cambridge, 9-10 September 2002

Mathematics in Communications
Lancaster University, 16-18 December 2002

## CO-SPONSORED CONFERENCE

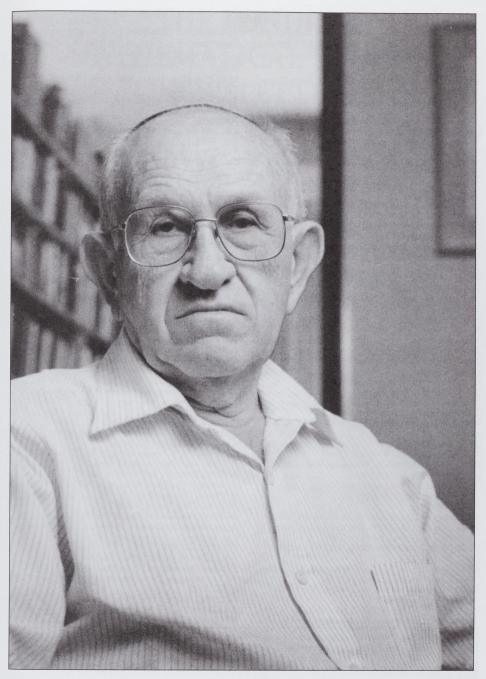
RADAR 2002 Edinburgh University, UK 15-17 October 2002

## Further details from:

Belinda Morris, Conference Assistant, The Institute of Mathematics and its Applications, Catherine Richards House, 16 Nelson Street, Southend-on-Sea, Essex SS1 1EF

Direct line (01702) 356114 Fax: (01702) 354111 Web: www.ima.org.uk

Tel: (01702) 354020 Email: conferences@ima.org.uk



S.A. AMITSUR HONORARY MEMBER 1989

#### 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). (296)

JANUARY 2002

6-11 Mathematical Biology, LMS/EPSRC Short Course, Manchester University (296)

7-9 Fourth Order PDEs Workshop, Bath University

9 British Women in Mathematics Day, De Morgan House, London (299)

11 The Future of Theoretical Physics and Cosmology Conference, Cambridge University (297)

17-19 2001 Lie Groups Conference, Twente University, Enschede (299)

18 Edinburgh Mathematical Society Meeting, Edinburgh (296)

18-20 Microstructures Vienna GAMM Seminar Vienna University of Technology (300)

21-25 Structured Ring Spectra and their Applications Workshop, Glasgow University (299)

23 Combinatorics Meeting, Open University (299) 25 Yorkshire Differential Geometry Day, University of Leeds (300)

FEBRUARY 2002 Royal Hollowan 2 SECANTS, Oxford (300)

15 Edinburgh Mathematical Society Meeting, Edinburgh (299)

15 Mary Cartwright Lecture, London (299) 27 LMS Midlands Regional Meeting, Birmingham University (299)

28 - 2 Mar Model Theory and Model Theoretic Algebra Mini-Conference, Birmingham University (299) MARCH 2002

1 North British Functional Analysis Seminar, Newcastle upon Tyne University (300)

2 Operator Theory Conference, Newcastle upon Tyne University (300)

8 Edinburgh Mathematical Society Meeting, Dundee (296)

17-27 Semi-Classical and Quantum Multibody Systems Workshop, Warwick University (298)

18-22 Quantum Topology Workshop, Warwick University (300)

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

APRIL 2002

7-12 Joint BMC/BAMC, Warwick University (296) 14-20 Classical N-Body Systems and Applications Workshop, Warwick University (298) 22-23 Astrodynamics Workshop, Surrey University

25-26 Invariant and Symmetry-Preserving Simulation Workshop, Warwick University (298)

25-26 Algorithms for N-Body Problems Workshop, Leicester University (298)

**MAY 2002** 

3 Edinburgh Mathematical Society Meeting, Aberdeen

13-31 Probability Theory School and Conference, ICTP, Italy (300)

19-26 Symmetry and Perturbation Theory Conference. Sardinia, Italy (299)

**JUNE 2002** 

2-8 Combinatorics 2002 Conference, Maratea, Potenza, Italy (300)

5 LMS Northern Regional Meeting, Liverpool University (298) 7 Edinburgh Mathematical Society Meeting, St

Andrews (296)

17-21 Householder Symposium XV, Peebles Hydro Hotel, Scotland (296)

21 LMS Meeting, Hardy Lecture, London (298)

24-28 Analytic Number Theory Workshop, Max Plank Institute, Bonn (288)

24-29 Topology, Geometry and Quantum Field Theory Symposium, Oxford (300) 27-2 July LMS Invited Lectures, Professor P. van

Moerbeke, Leeds University (298)

**JULY 2002** 

1-6 The Teaching of Mathematics Conference, Crete, Greece (297)

7-19 Numerical Analysis Summer School, University of Durham (295)

8-19 Normal Forms, Bifurcations and Finiteness Problems in Differential Equations SMS-NATO ASI Meeting, Université de Montréal, Canada (298) 8-26 Algebraic K-theory and its Applications School and Conference, ICTP, Italy (300)

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)

26-27 Meeting in honour of 65th birthday of M.S.P. Eastham, University of Wales (296)

AUGUST 2002

5-15 New Directions in Dynamical Systems, Ryukoku and Kyoto Universities (293)

20-28 ICM2002, Beijing, China (297)

29-2 Sept Nonlinear Partial Differential Equations International Conference - Theory and Approximation, City University of Hong Kong (297)

SEPTEMBER 2002

1-9 Algebraic Hyperstructures and Applications Congress, Samothraki Island, Greece (300)

9-27 Intersection Theory and Moduli, ICTP, Italy (300) APRIL 2003

7-10 BMC, University of Birmingham (296) **JULY 2003** 7-11 ICIAM 2003, Sydney, Australia (298)

The Newsletter is published monthly except in August. Items and advertisements for inclusion in the Newsletter should be sent to the Editor, Susan Oakes, by e-mail, fax or post to the LMS office (addresses below), to arrive before the first day of the month prior to publication.

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