

London  
Mathematical  
Society

reserve fund. Tom Körner, our representative at the British Association for the Advancement of Science, reported that the Mathematics Section was in need of some boosting. It was recognised that the British Association provides a massive opportunity for media attention, and agreed that this would be an appropriate job for the new Mathematics Promotion Unit.

The report of the General Secretary sparked off an extensive discussion on the aims of the Society and its relationship with the IMA; a joint LMS/IMA working group has been considering this relationship, and it is now proposed that we should step up a gear and embark on a more thorough investigation of the ways in which the two societies might work together on issues which are relevant to both. As a starting point we would need to examine in detail the aims of the LMS. In recent years much has changed. The LMS has been going through a period of evolution, during which the acquisition of De Morgan House and the appointment of an Executive Secretary have been key

moves. As it nears the end of this phase, the Society is more conscious than before of the relationship between its income stream and the schemes it has to support; it needs to be, as the mechanisms for support of our main activity, namely research, are changing at many levels.

As the meeting moved towards its end, it was time for the President to thank those members of Council whose last meeting it was, and especially Chris Lance, who had been Publications Secretary since 1996 during a period of major expansion the Society's publishing activity. Then Tony Scholl closed the meeting with his thanks to the President. He had only been in office for one year, leaving early to take up his new appointment at the Institute for Advanced Study in Princeton, but, as Tony put it, rather than take time to get up to speed as President, he had started his post with us with rocket boosters on, and so had more than made up for his short tenure.

Sarah Rees

## LONDON MATHEMATICAL SOCIETY 2003-2004 COUNCIL

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

<b>President:</b>	Professor F.C. Kirwan FRS (Oxford)
<b>Vice-Presidents:</b>	Professor A.G. Chetwynd (Lancaster) Professor A.J. Scholl (Cambridge)
<b>Treasurer:</b>	Dr N.M.J. Woodhouse (Oxford)
<b>General Secretary:</b>	Professor N.L. Biggs (LSE)
<b>Programme Secretary:</b>	Dr S.A. Huggett (Plymouth)
<b>Publications Secretary:</b>	Professor J. Howie FRSE (Heriot-Watt)
<b>Education Secretary:</b>	Dr W.B. Stewart (Oxford)
<b>Members-at-Large:</b>	Professor I.D. Abrahams (Manchester) Professor M.R. Bridson (Imperial College London) Professor C.J. Budd (Bath) Dr R.D. Camina (Cambridge) Professor R.T. Curtis (Librarian) (Birmingham) Dr P.J. Davies (Strathclyde) Professor M.M. Dodson (York) Professor A.M. Etheridge (Oxford) Professor K.J. Falconer FRSE (St Andrews) Sir John Kingman FRS (Isaac Newton Institute) Dr S.E. Rees (Newcastle) Dr F.A. Rogers (King's College London)

## TREASURER'S REPORT TO THE ANNUAL GENERAL MEETING 2003

In the financial year 1 September 2002 to 31 August 2003 the Fixed Assets of the Society rose in value from £9,556,871 to £9,819,351. The rise is welcome after the sharp fall last year, and reflects a general rise in UK equities.

The Building and Development Reserve Fund was unchanged over the year, and stands at £500,000. The Printing and Publication Reserve Fund fell by £55,413 to £1,144,587, after a planned withdrawal to meet the start-up costs of the journal *Compositio*. Two new reserve funds were established, the Grants Payable Fund

(£68,900) to cover grants that have been awarded but which will not be claimed immediately; and the Special Activities Reserve (£23,222) to hold gifts and bequests. The level of reserve funds, and their purpose, will be reviewed in January.

It has been another good year for the Society's publishing activities, which generated a welcome surplus of £558,560, the drop from last year being almost entirely due to the start-up costs of *Compositio*. The surplus is the result of good management rather than excessive profit taking, but provides an essential contribution to the resources needed to pursue the Society's charitable objects.

The total expenditure of the Programme Committee, Research Meetings Committee, Computer Science Committee, Women in Mathematics Committee, and Education

### LMS Newsletter

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Reviews Editor: Professor M.P.F. du Sautoy (dusautoy@maths.ox.ac.uk)

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Committee was very much the same as last year at £296,895, but other grants and expenditure in furtherance of the objects of the Society fell back some £40K to the level of 2000-01, having increased by roughly this amount last year as a result of grants for the Mathematical Olympiad and for the ICM in Beijing.

Total ordinary membership increased marginally by 5; there was a sharp increase in associate membership from 43 to 138, reflecting the success of the EPSRC scheme to pay the cost of membership for EPSRC-funded research students. Subscription income rose from £47,070 to £52,406; expenditure on direct services to members was steady.

Management and Administration costs rose from £503,472 to £541,677. The rise reflects an increase in salary costs, other smaller changes largely cancelling out (a rise in IT costs, a fall in electricity costs, and a fall in travel costs for officers, Council, and committees). Last year, travel costs were inflated by the ICM in Beijing.

Overall, the news is positive, certainly in contrast to last year. There are no dramatic changes to report, but Council is aware of the Society's reliance on its publications surplus, and is concerned about future developments in this area as electronic publishing becomes more widespread and efficient. I would like to thank Ephrem Belay, Susan Oakes and Peter Cooper for their tireless work and support.

N.M.J. Woodhouse  
Treasurer

## ROYAL GOLD MEDAL

The Royal Society of Edinburgh awards the Royal Gold Medal in recognition of intellectual endeavour which has had a profound influence on people's lives, world-wide. Amongst those recently awarded the Royal Gold Medal was Sir Michael Atiyah, OM, FRS, for his profound and beneficial effect in the development of mathematics and science in the UK and Europe.

## ANDREI BOLIBRUKH

Academician Andrei Bolibrukh died on 11 November 2003 after a long illness, at the age of 53. Professor Bolibrukh was appointed as the Editor of *Izvestiya Mathematics* in 2002 and he was a very welcome newcomer to the collaboration that the Society has with the Russian Academy of Sciences on the translation of this journal. His contribution to the management meetings that took place this summer in Moscow was clear and incisive and gave an indication of his value to Russian mathematics as one of the internationally distinguished mathematicians who chose to work in Russia. He was Deputy Director of the Steklov Institute. Bolibrukh applied modern methods of complex analytic geometry to classical problems about ordinary differential equations and was a leading expert on Hilbert's 21st problem. After doubts had been raised in the 1970s about J. Plemelj's 1908 solution, Bolibrukh published the first counterexample in 1989; his work also gave correct proofs in many cases.

## LMS-IMA WORKING GROUP

Representatives of the LMS and IMA now meet regularly to discuss ways in which the two organisations can co-operate for the good of the mathematical community. A meeting took place on 19 September 2003 and this joint report, the second in the series, is provided for the membership of both societies.

1. It was reported that the design and striking of the David Crighton Medal was proceeding via Fattorini's; a plaster cast would be available for viewing by Johanna Crighton, and others representing the two organisations. It was proposed that the award be presented to the 2003 recipient, John Ball, at the IMA Presidential Address on 23 June 2004, an open event, followed by a reception.

2. In discussion of the roles played by the IMA and the LMS in support of conferences several points were made, including:
  - Unlike the LMS, the IMA processes conferences to recover all costs and this policy can lead to perceptions that the IMA is less 'charitable' than the LMS.
  - Groups of IMA members run conferences from their own organisations and often receive support from the LMS. It was noted that the IMA had recently introduced a modest conference grant scheme aimed at addressing the same need.
  - The LMS feels the need for smaller low-cost meetings and sees no reasons to amend the basis of its support.
  - Outside the academic sector, it was less easy for members to draw on their own organisations to facilitate low-cost meetings. However in many cases the higher registration fee was accepted by the membership as reasonable.
  - Further opportunities for collaboration between the two societies exist, separate from their role in facilitating meetings organised by the mathematics community itself. For example there is a wide range of meetings being arranged across mathematics for different participants. The two societies, in attempting to support meetings in different parts of this multidimensional spectrum, were broadly complementary.
3. Links with overseas and international organisations and mathematicians were discussed.
  - Both organisations have overseas members and their journals are distributed throughout the world. The LMS has reciprocity agreements with some equivalent societies overseas. Other opportunities for international collaboration exist. For instance, neither body at present has formal links with Australia.
  - The LMS Council is considering proposals to establish an International Affairs Committee, to bring together the Society's international activities. The IMA will be asked to nominate a member to the new committee, as it had for the former IMU Advisory Committee.
4. Future strategy for LMS-IMA relations was discussed, and the following points were made:
  - It was undoubtedly beneficial for the mathematics community that the two organisations were meeting to discuss issues of common interest. No matter what longer-term outcome, it was agreed this level of communication

## ANNUAL LMS SUBSCRIPTION 2003-04

The Society is appreciative of those members who have paid their 2003-04 subscriptions. May we remind those who have not yet paid that subscriptions were due on 1 November 2003. 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 subscription remains unpaid by **31 January 2004**. 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 or credit card. If you have misplaced your renewal of subscription form, contact the LMS office (email: [membership@lms.ac.uk](mailto:membership@lms.ac.uk); tel: 020 7637 3686; fax: 020 7323 3655).

## **SCHEME 7 LMS COMPUTER SCIENCE 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 at the interface of Mathematics and Computer Science, either by the grantee to another institution within the UK or abroad, or by a named Computer Scientist or Mathematician from within the UK or abroad to the home base.



## SMS-NATO ADVANCED SUMMER INSTITUTE Summer School

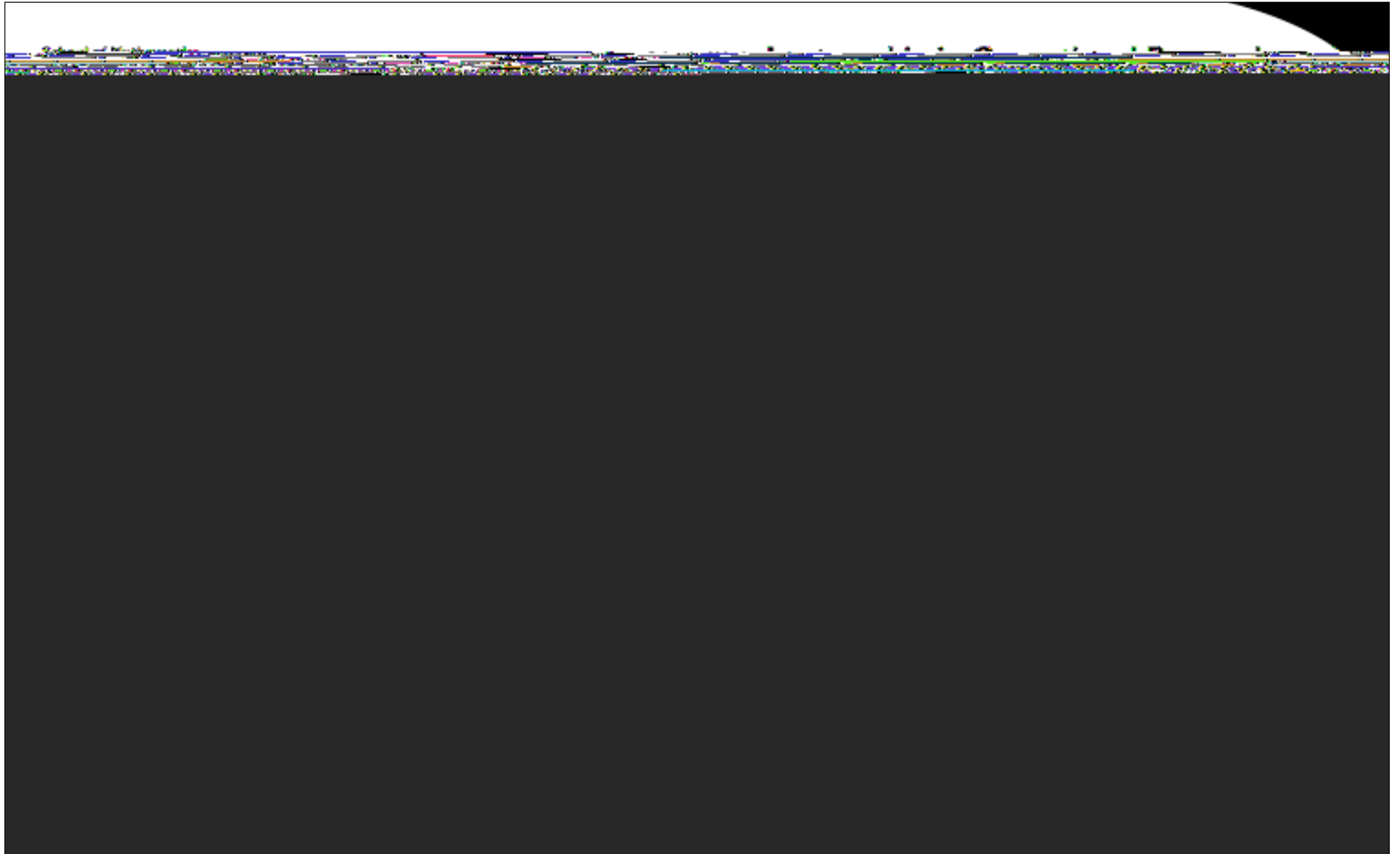
The SMS-NATO Advanced Summer Institute Summer School on *Morse Theoretic Methods in Non-linear Analysis and Symplectic Topology* will be held from 21 June - 2 July at the Université de Montréal, Canada. The following is a partial list of subjects to be covered :

- Floer homological methods in symplectic topology;
- Lagrangian geometry and topology;
- Analysis behind symplectic field theory;
- Generating functions and applications;
- Morse theory, graphs, and loop spaces;
- Homotopy theoretic tools in finite and infinite dimensional Morse theory;
- The Morse complex for infinite dimensional manifolds;
- The Conley index in Hilbert spaces with applications;
- Topology of robot motion planning.

The Invited Speakers are:

- Alberto Abbondandolo (Scuola Normale di Pisa)
- Paul Biran (Tel-Aviv)
- Ralph Cohen (Stanford)
- Octav Cornea (Montréal)
- Michael Farber (Tel-Aviv)





## WIDENING PARTICIPATION IN MATHEMATICS, STATIS- TICS AND OPERATIONAL RESEARCH

Widening participation has been a concern for mathematics related subjects for some time as this discipline area continues to experience recruitment problems and there are not enough graduates with mathematics related degrees to meet industry's demands.

The Mathematics, Statistics and Operational Research (MSOR) community has already done a lot of work in this area. Links have been developed with schools and the general community, and there have been a number of alternative entry routes provided such as HNDs, foundation degrees and bridging courses to prepare students for degree work.

Students are being supported by a range of appropriate and flexible curricula. A number of new learning and teaching methodologies are being employed. In addition, modes of study have been adapted to cater for the differing needs of students. There is also considerable evidence that the students that have been recruited from this wider pool are realising their potential.

These are the conclusions presented in the booklet *Widening Participation in Mathematics, Statistics and Operational Research*, by Bill Cox (Aston University) and Penny Bidgood (Kingston University), which has just been published by the LTSN Maths, Stats & OR Network. The booklet examines how lecturers have responded to widening participation, identifies good practice and sets out to disseminate it to the wider community. It contains over 30 different case studies from a wide range of higher education institutions. It groups these under three main headings: recruitment, retention and realising potential.

The examples of practice cover a wide range of outreach activities such as improving links with schools and colleges, publications for school children and providing support and materials for

school teachers. A number of alternative entry routes like HNDs and foundation degrees are provided. There are also a few examples of recruitment aimed at specific groups of people.

The section on retention looks at matching the curriculum to the student intake, student support mechanisms and facilities as well as retention in the USA, retention in FE and improving student achievement in English Higher Education.

This booklet is the latest in the occasional series produced by the LTSN Maths, Stats & OR Network under the heading *Learning and Teaching in Mathematics, Statistics and Operational Research* (ISSN 1476-1378). The other titles in the series are: *Post-sixteen Mathematics within Curriculum 2000*, *Guidelines for Introducing Group Work in Undergraduate Mathematics*, *Good Practice in the Provision of Mathematics Support Centres* (2nd ed), *Flexible Learning in Statistics*.

If you would like a copy of any of these booklets, please contact the LTSN Maths, Stats & OR Network (tel: 0121 414 7095, email: [info@mathstore.ac.uk](mailto:info@mathstore.ac.uk)). Electronic versions are also available via <http://ltsn.mathstore.ac.uk/publications/index.shtml>.

## ROYAL INSTITUTION DISCOURSE

David Acheson, one of this year's LMS Popular Lecturers, was the speaker at a Royal Institution Discourse on 31 October 2003. As ever, David gave an excellent talk, entitled *1089*, entertaining a large and diverse audience, in the manner customary to these long-established evenings.

Scattered around the RI Library for the event were exhibitions to amuse and inform. The Society's materials attracted good interest, in particular the videos of the Popular Lectures, including, of course, those of David and Marcus du Sautoy earlier this year.

Another exhibition – models of mathematically-related sculptures by John Robinson – renewed the long association of the Royal Institution with Bangor mathematics and the sculptor.

Ronnie Brown first saw some of John's amazing sculptures in John's Freeland Gallery in Albemarle Street, after a Mathematics

Masterclasses Organisers' Meeting in 1985, the Gallery's second and last year of operation. This led to some of John's maquettes being presented at the Royal Institution in 1988 and 1992, for Discourses of Sir Michael Atiyah and of Ronnie Brown, and to full size sculptures being shown at the Pop Mathematics Roadshow in Leeds in 1989 and Liverpool in 1990. A website at Bangor ([www.cpm.informatics.bangor.ac.uk/](http://www.cpm.informatics.bangor.ac.uk/)), showing over 55 sculptures, was constructed in 1996, supported by Edition Limitée, and was upgraded in 2002 with EPSRC support. This has made John's work available to the world. Ronnie Brown has lectured on John's work in Oxford, Toronto (Fields Institute, 90th birthday of Donald Coxeter), Maubeuge, San Sebastian, Paris, Obidos,



just as we can travel on the curved surface of our planet without falling off, in a compact universe there is no edge of space. To explain this requires an appreciation of topology, in order to understand how space fits together, and the book gives a highly accessible introduction to these ideas. An important insight is that while Einstein's general theory of relativity describes the local geometry of the universe, in terms of the curvature of space-time, it does not address global topological questions.

**Liverpool University (Pure  
Mathematics)**

Bryden, J. (University of Southern  
Illinois, USA)

*Experiments*, 12 Jan - 9 Apr '04  
Zochi, S. (Universidade de São Paulo, Brazil) *Design of Experiments*, 1 Mar '04 - 28 Feb '05

**Royal Holloway**

Schaathun, H.G. (Bergen, Norway) *Fingerprinting*, 3 Oct '03 - March '04

Shin, S. (Sookmyung Women's University, S. Korea) *Cryptography*, 2003-04

**Salford University**

Krillova, I. (Saratov State University, Russia) *Bio Mechanics*, Sep '03 - Sep '04

Nolde, E.V. (Russian Academy of Sciences, Moscow) *Asymptotic Methods, Wave Propagation in Solids and Structures*, Oct '03 - Oct '04

**Southampton University**

Afshar-Nejad, Z. (Ferdowsi University, Mashhad, Iran) *Dynamical Systems*, 1 Dec '03 - 30 Sep '04

Borchers, B. (New Mexico Tech; IPAM, Los Angeles, USA) *Semidefinite Programming*, 8 - 11 Jan '04

de Oliveira, E. (Bahia Universidad) *Clustering Techniques; Three-Phase Simulation Methods*, 12 Sep '03 - 31 Aug '04

Lecuire, C. (UMPA, France) *Kleinian Groups and Hyperbolic Manifolds*, 1 Oct '03 - 31 Jan '04

Liyanage, M. (Sri Jayawardepura University, Sri Lanka) *Industrial Applied Mathematics*, 1 Feb - 31 July '04

Morones, R.M. (ITAM, Mexico) *Industrial Applied Mathematics*, 1 Aug '03 - 31 Jul '04

Penny, M.P. (QUT, Brisbane, Australia) *Modelling of Dye-*

*Sensitive Solar Cells*, 15 Jan - 6 Feb '04

**St Andrews University**

Albert, M. (University of Otago, New Zealand) *Combinatorics on Permutations*, Sep '03 - Jan '04

Hornig, G. (Ruhr-Universität Bochum) *Magnetohydrodynamics*, Feb - May '04

Zhugzhda, Y. (University of Moscow) *Magnetohydrodynamics*, Spring '04

**Strathclyde University**

Belyakov, V.A. (Landau Institute of Theoretical Physics, Moscow) *Nonlinear Optics in Chiral Liquid Crystals, Electromagnetic Waves in Periodic Media, Solid State Nuclear Physics*, 1 Jun - 31 Aug '04

**UMIST**

Mendez, V. (Universitat International de Catalunya, Spain) *Dynamical Properties of Reaction-Diffusion Fronts*, 1 Apr - 30 Jun '04

Reisen, B.V. (Universidade Federal do Espirito, Brazil) *Long Memory Models*, 10 Nov '03 - 30 Apr '04

Yalcinkaya, S. (METU, Ankara, Turkey) *Pure Mathematics*, 25 Jul '03 - 31 Jul '04

**University of Wales, Aberystwyth**

Ervin, V.J. (Clemson University, SC, USA) *Viscoelastic Flow, Numerical Analysis*, Jul - Aug '04

Mullen, G.L. (Pennsylvania State University, USA) *Design Theory, Finite Fields, Hypercubes*, Jun - Jul '04

Owens, R.G. (École Polytechnic Fédérale de Lausanne, Switzerland) *Viscoelastic Flow, Spectral Methods*, May '04

**University of Wales, Swansea**

Levendovskii, S. (University of

Texas) *Pseudo-differential Operators & Markov Processes, Applications to Finance*, Mar - Apr '04

**Warwick University (Mathematics Institute)**

Brassesco, S. (Instituto Venezolano de Investigaciones Cientificas) *Stochastic Analysis*, 21 Aug '03 - 31 Aug '04

Choi, Y. (Kyungpook National University) *Hyperbolic Geometry*, 16 Oct '03 - 15 Oct '04

Ingalls, C. (University of New Brunswick) *Noncommutative Algebra, Algebraic Geometry*, 1 Sep '03 - 31 Aug '04

Lecuire, C. (UMPA, ENS-Lyon) *Hyperbolic Geometry*, 1 Feb - 3 May '04

Liu, Y. (Yangzhou University) *PDEs & Nonlinear Dynamics*, 25 Oct '03

- 30 Oct '04  
Marden, A. (University of Minnesota) *Kleinian Groups*, 15 Mar - 15 May '04

Moori, J. (University of Natal) *Algebra*, 30 Jul '03 - 15 Jan '04

Shen, Y. (Suzhou University) *Geometric Analysis*, 10 Jul '03 - 10 Jan '04

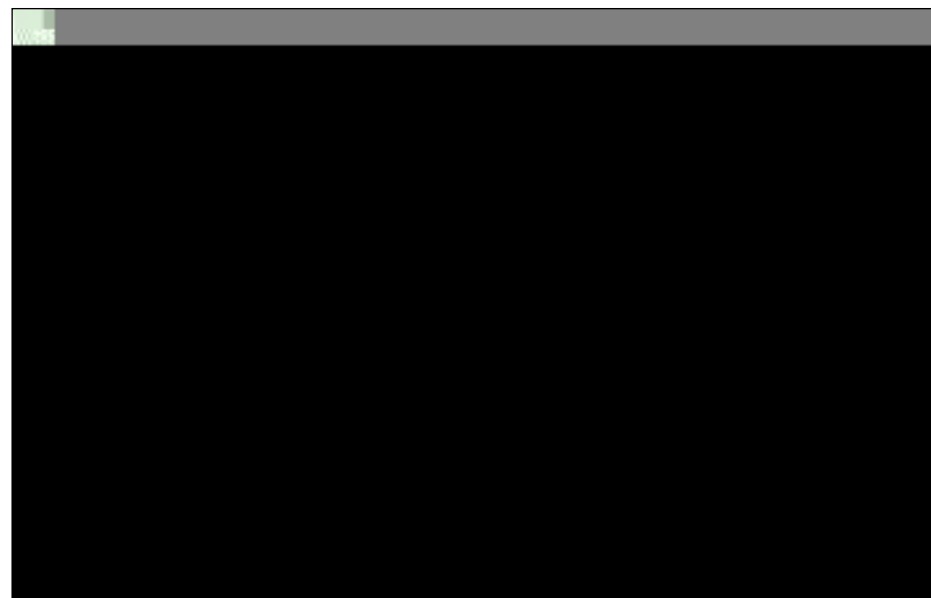
**Warwick University (Statistics)**

Jayasekara, L. (University of Rumana, Sri Lanka) *Contingency Tables, Tests on Contingency Tables*, 1 Oct '03 - 31 Mar '04

**York University**

Beresnevitch, V. (Minsk University, Belarus) *Number Theory*, Oct '03 - Aug '04

Skrigonov, M. (Steklov Institute, St. Petersburg, Russia) *Number Theory*, Nov - Dec '03



## THE INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS

### FORTHCOMING CONFERENCES

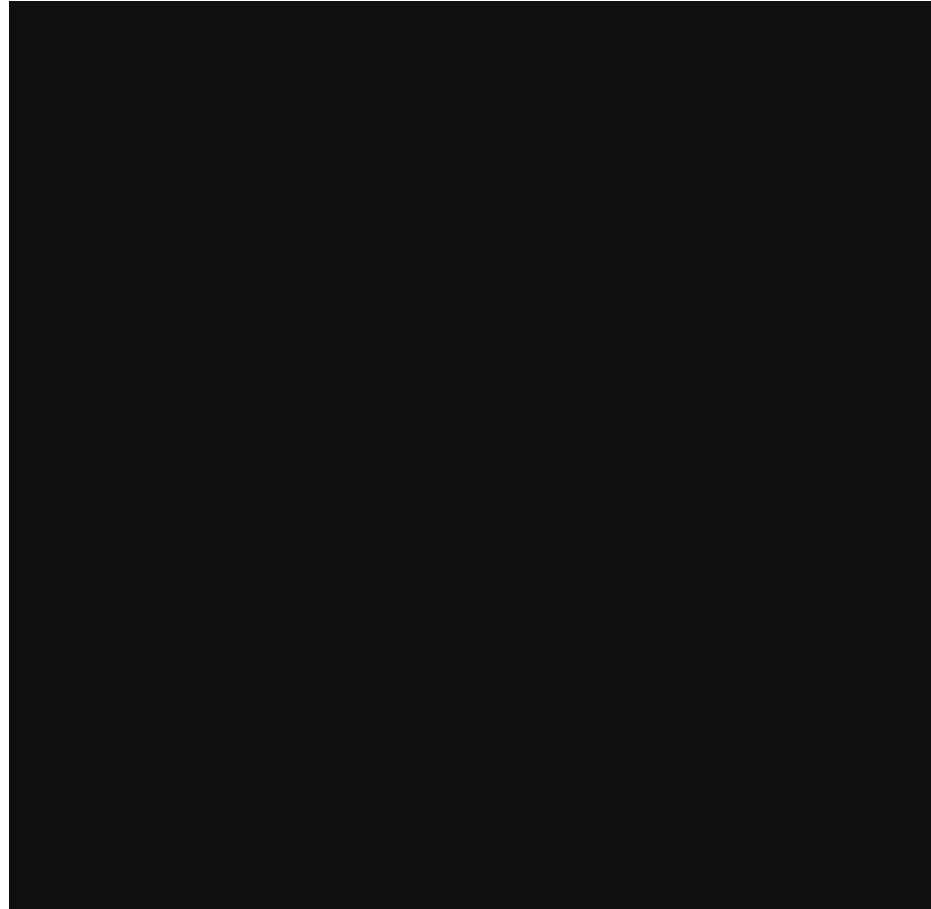
<b>Modelling Permeable Rocks IV</b>	<i>University of Southampton, 29 March - 1 April 2004</i>
<b>Quantitative Modelling in the Management of Health Care IV</b>	<i>University of Salford, 31 March - 2 April 2004</i>
<b>Modelling in Industrial Maintenance and Reliability V</b>	<i>University of Salford, 5 - 7 April 2004</i>
<b>Analysing Conflict and its Resolution</b>	<i>St. Catherine's College, Oxford, 28 - 30 June 2004</i>
<b>Flood Risk Assessment:</b>	<i>University of Bath, 7 - 8 September 2004</i>
<b>Boundary Integral Methods III: Theory and Applications</b>	<i>Reading University, 14 - 18 September 2004</i>
<b>Mathematics in Signal Processing VI</b>	<i>Royal Agricultural College, Cirencester, 14 - 16 December 2004</i>
<b>Recent Advances in Non-Linear Mechanics</b>	<i>Aberdeen University, 30 August - 1 September 2005</i>
<b>Mathematics of Surfaces XI</b>	<i>Loughborough University, 5 - 7 September 2005</i>

### CO-SPONSORED CONFERENCE

<b>International Conference on Mathematical Modelling and Applications</b>	<i>City University, London, 10 - 14 July 2005</i>
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**WILLIAM HENRY YOUNG  
DE MORGAN MEDALLIST  
1917**



Professor Young received the De Morgan Medal on 1 November 1917. In his early work, Young arrived independently at a definition of the integral in a form different from, but essentially equivalent to, that of Lebesgue. He was anticipated by about two years but he recognized this magnanimously and in further development of the theory it was he who named 'the Lebesgue integral'. In later papers, Young developed the

theory of integration differently, by the 'method of monotone sequences', which is now often applied in introductions to integration. Using this method, he had complete success in giving a common generalization of the Lebesgue and Stieltjes integrals. Young also did significant work on Fourier series and other special orthogonal series and on the differential calculus of functions of several variables.