

### Forthcoming Society Meetings

#### 2005

Friday 7 October

London  
Algorithms Meeting  
M. Jerrum  
M. Dyer  
[page 3]

Friday 18 November

London  
Annual General  
Meeting  
B. Totaro  
F.C. Kirwan  
[page 5]

#### 2006

Friday 10 February

London  
G. Segal  
U. Tillmann  
(Mary Cartwright  
Lecture)

Monday 15 May

Leicester  
Midlands Regional  
Meeting  
A. Goncharov  
A. Zelevinsky

### LMS 2005 ELECTIONS AND OFFICERS

The ballot papers for the November elections to Council and Nominating Committee are being circulated with this copy of the *Newsletter*. Ten candidates for Members-at-Large of Council were proposed by the Nominating Committee.

Three Officers will be changing. Frances Kirwan's term of office as President comes to an end and the current President-Designate, John Toland, is nominated as the next President. Mandy Chetwynd has completed her term as a Vice-President and Alice Rogers is nominated in her place. In addition, Brian Stewart is not standing for re-election as Education Secretary and Chris Budd is nominated in his place.

Please note that completed ballot papers must be returned by **Thursday 10 November 2005**.

Norman Biggs  
General Secretary

### ANNUAL DINNER

The Annual Dinner will be held after the Annual General Meeting on Friday 18 November at 7.30 pm at The Montague on the Gardens Hotel, London WC1. The cost is £36.00 per per-

son and members may book places for guests. The booking form, enclosed with this *Newsletter*, should be returned together with payment to the London Mathematical Society office by **Monday 14 November**.

### SUBSCRIPTIONS AND PERIODICALS

The annual subscription to the London Mathematical Society for the 2005-06 session shall be: Ordinary Members £36.00; Reciprocity Members £18.00; Associate Members £9.00. The prices of the Society's periodicals to Ordinary, Reciprocity and Associate Members for the 2005-06 session shall be: *Proceedings* £72; *Journal* £72.00; *Bulletin* £36.00; *Nonlinearity* £57.00; *Journal of Computation and Mathematics* remains free.

### ANNUAL SUBSCRIPTION

The LMS annual subscription, including payment for publications, for the session November 2005 – October 2006 is due on **1 November 2005**. Together with this *Newsletter* is a renewal form to be completed and returned with your remittance in the enclosed envelope.

No action is required if you are already paying by direct

debit, and do not wish to change your choice of publications. Fully complete and return the form if you are paying by direct debit but wish to change your choice of publications or add/delete a subscription to the European Mathematical Society. Bank accounts of members paying by direct debit will be debited with the appropriate amount on **15 January 2006**. Other members should either enclose a cheque (£ sterling or US\$) with their form or, if they have a UK bank account and wish to take advantage of this convenient form of payment, request a direct debit mandate. Although the facility to pay by credit card is open to all members of the Society, it is our preference that members continue to pay by direct debit.

2 **PUBLICATIONS PRICING  
POLICY**

The LMS has a pricing structure that allows individual members to purchase its journals, for personal use only, at a substantial discount. In common with other mathematical societies, the Society regards a subscription as for personal use only if:

(a) issues are either destroyed or held on a continuing basis among the member's personal belongings, and are not deposited even temporarily in a library, common room or other public room, and

(b) are accessible to other mathematicians (or to students) only with the member's permission, given individually in each case.

Issues are the personal property of members, who would be able, without negotiation with authorities, to take the issues with them if they left their present institution or to give them to another individual who is willing to abide by these terms.

**DE MORGAN HOUSE**

Work is being undertaken in De Morgan House to improve and increase the conference facilities on the lower ground floor. The outcome will be a larger Hardy Room and two new smaller committee/seminar rooms, together with full disabled facilities.

As is so often the case, the work is taking longer than had been planned and as a result we will have less space available for meetings in October and early November. Please accept our apologies for any inconvenience this may cause you.

**LMS Newsletter**

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 Designed by CHP Design (tel: 020 7240 0466, email: info@chpdesign.com, web:www.chpdesign.com)  
 Publication dates and deadlines: published monthly, except August.  
 Items and advertisements by first day of the month prior to publication.  
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 Charity registration number: 252660.

**LONDON MATHEMATICAL SOCIETY**

**Algorithms Meeting**

**Friday 7 October 2005**

**Chemistry Auditorium, University College London**

- 3.15 pm LMS business**
- 3.30 pm Mark Jerrum (Edinburgh)**  
*Algorithmically feasible sampling:  
what are the limits?*
- 4.30 pm Tea**
- 5.00 pm Martin Dyer (Leeds)**  
*Spin systems: counting and sampling*

The meeting will be held in the Chemistry Auditorium, Christopher Ingold Building, University College London, 20 Gordon Street, London WC1.

A reception will be held at De Morgan House at 6.15 pm with a dinner afterwards at the Mercato Restaurant, 103-105 Southampton Row, London WC1 at 7.30 pm. The cost will be £26.00 per person, inclusive of wine. Those wishing to attend should inform The Administrator, Susan Oakes, 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 3 October**.

There are limited funds available to contribute in part to the expenses of members of the Society or research students to attend the Society meeting. Requests for support, including an estimate of expenses, may be addressed to the Programme Secretary at the Society (web: www.lms.ac.uk; email: grants@lms.ac.uk).

## The IMA–LMS Frameworks Study Initiative

### Looking at the future options for the IMA and LMS

The Councils are keen to receive comments on the issues in the Frameworks Report (available on [www.lms.ac.uk](http://www.lms.ac.uk)).

#### Send your views by email

[fsi@ima.org.uk](mailto:fsi@ima.org.uk), [fsi@lms.ac.uk](mailto:fsi@lms.ac.uk)

#### Write to the Presidents

- The Institute of Mathematics and its Applications, Catherine Richards House, 16 Nelson Street, Southend-on-Sea SS1 1EF.
- The London Mathematical Society, De Morgan House, 57–58 Russell Square, London WC1B 4HS.

#### Watch for Further News

Updated information on the consultation will be available from the two societies' web-sites, at [www.lms.ac.uk/fsi.html](http://www.lms.ac.uk/fsi.html) and [www.ima.org.uk/institute/fsi.htm](http://www.ima.org.uk/institute/fsi.htm).

#### Mathematics Departments Meetings

As part of the debate on the possibility of the two societies moving into a different relationship at some point in the future mathematics departments were asked to arrange meetings in their regions to discuss this document, and to offer their opinions. Meetings to this effect have been organised in Leeds and Manchester as follows:

#### University of Leeds

Tuesday 11 October at 3.00 pm in Room H of the School of Mathematics. The speakers will be Professor David Abrahams (University of Manchester) former Vice-President of the IMA, and Dr Stephen Huggett (University of Plymouth) LMS Programme Secretary. All members of the LMS and IMA are welcome. For further details, please contact H.G. Dales,

Department of Pure Mathematics, University of Leeds ([garth@maths.leeds.ac.uk](mailto:garth@maths.leeds.ac.uk)).

#### University of Manchester

Wednesday 12 October at 12.30 pm in the Newman Building, Booth Street East which is located on the Oxford Road end of the campus. Please check the web site [www.maths.manchester.ac.uk/events](http://www.maths.manchester.ac.uk/events) for further details including possible updates on the time or location. All members of the mathematics community are welcome. If you require a parking permit or further information please contact Professor David Abrahams ([i.d.abrahams@manchester.ac.uk](mailto:i.d.abrahams@manchester.ac.uk)).

## THE BOOK OF PRESIDENTS 1865 – 1965

I should like to draw your attention to *The Book of Presidents 1865 – 1965*, which was published by the Society earlier this summer.

Each of the LMS presidents during the first century of the Society's existence has a double page spread devoted to him or her, as do the early De Morgan Medallists. There are shorter entries for more recent presidents and medallists, up to the present day. The establishment and rapid evolution of the LMS are set in context by an informative historical survey, and significant events affecting the Society are highlighted in a convenient chronological map. In short, this is a volume which all those interested in the development and achievements of British mathematics over the last century and a half would like to have on their bookshelves.

The book, which is in hardback only, may be ordered on your annual subscription renewal form (enclosed with this *Newsletter*) in the same manner as periodicals and is for sale to members at £15 pounds (£19 non-members) per copy. A review of the book appears on page 28.

Rob Curtis  
LMS Librarian

## LONDON MATHEMATICAL SOCIETY

### Annual General Meeting

Friday 18 November 2005

- 3.15 – 3.30 Annual General Meeting
- 3.30 – 4.30 Professor B. Totaro (Cambridge)
- 4.30 – 5.00 Tea
- 5.00 – 6.00 Professor F.C. Kirwan (Oxford)  
Presidential Address

The meeting will be held in the Chemistry Auditorium, Christopher Ingold Building, University College London, 20 Gordon Street, London WC1. Please note early start.

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, including an estimate of expenses, may be addressed to the Programme Secretary at the Society (web: [www.lms.ac.uk](http://www.lms.ac.uk); email: [grants@lms.ac.uk](mailto:grants@lms.ac.uk)).

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

## YOUNG BRITISH AND RUSSIAN MATHEMATICIANS

The LMS and the Russian Academy of Sciences (RAS) would now like to invite proposals for visits under our new 'Young British and Russian Mathematicians' scheme.

Each year, under this scheme, up to three young Russian mathematicians will spend a few weeks in Britain giving a series of survey lectures on the work of their Russian seminar, and up to three young British mathematicians will spend a few weeks in Russia giving a series of survey lectures on the work of their school. The LMS will meet the costs of Russian visitors and the travel costs of UK mathematicians, while the host institutions of the Russian Academy of Sciences will meet the latter's local expenses.

It is intended that any mathematician in either Britain or Russia may propose to host

such a visit. The proposal should include:

- (i) name and brief cv of the visitor,
- (ii) brief description of the course of lectures, and
- (iii) letter or email of agreement from the head of the host department.

The Scheme will be operated by the Programme Committee on behalf of the LMS and the Governing Body of Mathematical Sciences Division of the Russian Academy of Sciences and the Managing Committee of Moscow Mathematical Society for the Russians.

Please send proposals or enquiries to the Programme Secretary, Stephen Huggett (tel: 01752 232710, email: s.huggett@plymouth.ac.uk) or Sylvia Daly (tel: 020 7291 9971 email: grants@lms.ac.uk), or by post to De Morgan House.



V.V. Koslov A.A. Gonchar A.B. Zhizhchenko L.D. Faddeev S.P. Novikov A.G. Sergeev  
This was the meeting at the RAS at which the final details of the new scheme were agreed.

## LMS GRANTS

The following grants were awarded by LMS Committees

### Computer Science Committee (April–August 2005) BCTCS Grant

Name	Institution	Purpose	Amount
F. Moller	Swansea	Sponsorship of two speakers at the 2006 BCTCS conference	£1250.00

### Education Committee (April–August 2005) Small Grants

Name	Institution	Purpose	Amount
B. Richardson	SMC	Contribution to prize fund for high achievers in the 2005 Advanced Higher Mathematics Exams in Scotland	£200.00
C. Bell	SMC	Support for the running of the 2005 Mathematical Challenge	£300.00
	BCME 2005	Sponsorship of a workshop at the 2005 event	£500.00
	University of Exeter	Sponsorship of lunch at BA Festival 2004 Maths Event	£462.50

### Women in Mathematics Committee (April–August 2005) Child-care Grant

Name	Institution	Purpose	Amount
S. Rees	Newcastle	To aid with child-care costs incurred during conference in Switzerland	£150.00

### Programme Committee International Grants

#### Young Russian Mathematicians Scheme (2004-05)

Visitor	Host	Place	Date	Amount
A. Malyutin	P. Walters	Warwick	February 2005	£2,500
D. Osipov	M. Taylor	Manchester	January 2005	£2,500
T. Panov	N. Ray	Manchester	January 2005	£2,500
N.A. Tyurin	M. Reid	Warwick	June 2005	£2,500
A. Guterman	P. Butkovic	Birmingham	October 2005	£2,500

### Mathematics in Africa (2004-05)

Name	Grant Purpose	Amount
Neil Turok, African Institute for Mathematical Sciences	To provide support towards travel costs for research students with mathematics degrees to visit AIMS.	£7,500
Jean-Pierre Ezin, African Mathematics Millennium Science Initiative	To provide support towards travel costs for up to 4 research students with mathematics degrees to attend a conference on 'Representation Theory in Geometry and Mathematical Sciences' in Porto-Novo, Benin	£2,000

Mathematics in Africa (2004-05) (cont'd)

Name	Grant Purpose	Amount
Wandera Ogana, African Mathematics Millennium Science Initiative	To provide support towards travel costs for up to 4 research students with mathematics degrees to attend a general mathematics conference, with a one-day session on 'Mathematics in the Living Environment' in Mombasa, Kenya	£2,000
Sizwe Mabizela, Rhodes University, Grahamstown	To pay travel costs for an African delegate to attend the Chinese Mathematical Society 70th Anniversary Conference	£1,200

HAYA FREEDMAN

Haya Freedman, who was elected a member of the London Mathematical Society on 20 March 1958, died on 19 July 2005. She was born in Lvov (then in Poland) in 1923. She moved to Israel (then Palestine) in 1933 where she completed her education obtaining an MSc from the Hebrew University in Jerusalem. Her degree thesis in abstract algebra was written under the supervision of Dr J. Levitzki. She married a mathematical colleague Arye in 1948, moved to England in 1956 and did her PhD at Queen Mary College under Professor K. Hirsch. She took up a post in the Mathematics Department at Birkbeck College in 1965. After the late Professor Cyril Offord was invited to set up a Mathematics sub-department at LSE in 1966 Haya Freedman joined him there in 1967.

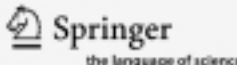

Haya's published research was in the general area of ring theory. She touched on subjects like torsion-free rings, the ring of endomorphisms of an Abelian group and its relation to the automorphism group.

She had a reputation as an exceptionally gifted teacher. This was based on an uncanny ability to evaluate the qualities of a student, which talents were also used in admissions interviews (even to the Economics Department!). Haya developed a teaching method that made the students much more


active participants in the learning process. This was achieved through seminars in which students explained to their colleagues original papers in mathematics. In the days of the BSc (Econ) degree at LSE, when the Department of Statistics and Mathematical Science offered a Mathematics degree, her third year course included an examinable project (in Algebra). Projects were selected by her according to student ability. She had quite a reputation for making mathematicians out of the talented students and many would say that the best way of obtaining a first class degree was to be a tutee of Haya's. These included a series of very good students indeed, some of whom had switched from Economics to Mathematics. One example of Haya's mentoring is Norman Fenton, now Professor of Computer Science at Queen Mary, University of London. Others of her former students also teach mathematics at universities both in this country and in the USA.

She is remembered by her colleagues also outside the formal life of the Department for her often remarkable gestures of great kindness. She leaves behind her husband Arye and two daughters Daphne and Josephine, and will be greatly missed.

Adam Ostaszewski  
London School of Economics


## The Variety of Applied Mathematics



**Theoretical Numerical Analysis**  
A Functional Analysis Framework  
K. E. Atkinson, W. Han, University of Iowa, Iowa City, IA, USA

Review of earlier edition ► ...the book is clearly written, quite pleasant to read, and contains a lot of important material...  
► R. Glowinski, SIAM Review, 2003


2nd ed. 2005. Approx. 575 p. 33 illus. (Texts in Applied Mathematics, Vol. 39) Hardcover  
ISBN 0-387-25887-6 ► € 54,95 | £ 42,50



**Quantum Dynamics with Trajectories**  
Introduction to Quantum Hydrodynamics  
R. E. Wyatt, University of Texas at Austin, TX, USA

► This excellent book covers a wide range of topics associated with Quantum Hydrodynamics. It's an excellent survey of the history, current state-of-the-field, and future research directions. ► B. Kendrick, Los Alamos National Laboratory, NM, USA

2005. XXXI, 410 p. 139 illus. (Interdisciplinary Applied Mathematics, Vol. 28) Hardcover  
ISBN 0-387-22964-7 ► € 59,95 | £ 46,00



**Dynamical Systems**  
Examples of Complex Behaviour  
J. Jost, Max-Planck-Institute for Mathematics in the Sciences, Leipzig, Germany

This book presents a survey of the field of dynamical systems and its significance for research in complex systems and other fields, based on a careful analysis of specific important examples.

2005. 200 p. (Universitext) Softcover  
ISBN 3-540-22908-6 ► € 39,95 | £ 29,50

**Methods and Applications of Singular Perturbations**  
Boundary Layers and Multiple Timescale Dynamics  
F. Verhulst, University of Utrecht, The Netherlands

Perturbation theory, one of the most intriguing and essential topics in mathematics, and its applications to the natural and engineering science is the main focus of this workbook.

2005. XVI, 328 p. (Texts in Applied Mathematics, Vol. 51) Hardcover  
ISBN 0-387-22966-3 ► € 49,95 | £ 38,50

**Combinatorial Optimization**  
Theory and Algorithms  
B. Korte, J. Vygen, University of Bonn, Germany

From the reviews of the 2nd edition ► This book on combinatorial optimization is a beautiful example of the ideal textbook. ...The second edition of this very recommendable book documents the relevant knowledge on combinatorial optimization...  
► J. Köbler, Halle an der Saale ELSEVIER Operations Research Letters, 2005, Issue 33

3rd completely revised and extended ed. 2006. Approx. 550 p. (Algorithms and Combinatorics, Vol. 211) Hardcover  
ISBN 3-540-25884-9 ► € 49,95 | £ 38,50

**Analysis and Numerics for Conservation Laws**  
G. Wornke, University of Magdeburg, Germany (Ed.)

The priority research program Analysis and Numerics for Conservation Laws was funded by the German research foundation Deutsche Forschungsgemeinschaft (DFG) for a period of six years starting in 1997. The diversity of topics, represented in the present book, was one of the strengths of the research program.

2005. X, 542 p. 236 illus. Hardcover  
ISBN 3-540-24834-X ► € 74,95 | £ 57,50

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## NEWS FROM THE EPSRC MATHEMATICAL SCIENCES PROGRAMME

### Changes to students' eligibility criteria for DTG funding

Following a European Court of Justice ruling on a case brought by a French national, the Department for Education and Skills (DfES) has amended its regulations on students' eligibility. Consequently, the Research Councils have slightly changed their residence eligibility criteria for student maintenance awards relating to EU nationals.

The change is that non-UK EU nationals who have spent the previous three years in the UK undertaking undergraduate study can now meet the residency requirements for full postgraduate studentship support. Previously, residence for the purpose of full time education was excluded by the eligibility criteria.

The basic rules for receiving training funds (DTA, CTA etc.) are:

- If you have been a UK resident for the last three years – you may receive fees and stipend support.
- If you are an EU national (but have not been a resident of the UK for the last three years) – you may only receive your fees.
- If you are a non-EU national and do not qualify on residency grounds (note full-time education does not count as residency for non-EU nationals) – you may not receive any support from training grants.

That having been said, it is not the role of EPSRC to judge the eligibility of potential students. Enquiries regarding eligibility should be directed to the university's own Admissions Office.

Full details of the change in the residence eligibility criteria can be found at the following link: [www.rcuk.ac.uk/documents/student\\_eligibility.pdf](http://www.rcuk.ac.uk/documents/student_eligibility.pdf).

### Changes to the Mathematical Sciences Small Grants Scheme

The small grants scheme has undergone some changes in order to take into account changes to full economic costing. The limit has increased from £10,000 to £20,000. Peer review will proceed as before (through postal peer review) and timescales have remained the same (16 weeks processing time required before a decision is necessary).

There have been some adjustments to the priorities of the scheme, however, with a greater emphasis placed on young researchers and new collaborations. We are also pleased to announce that it is now possible to apply for a small grant and still apply to the First Grant scheme afterwards. Please contact Anne Farrow for further details if you wish to take advantage of this scheme.

Further details of the Small Grants Scheme can be found at the following link: [www.epsrc.ac.uk/ResearchFunding/Programmes/MathematicalSciences/ResponsiveModeFunding/SmallGrantsScheme.htm](http://www.epsrc.ac.uk/ResearchFunding/Programmes/MathematicalSciences/ResponsiveModeFunding/SmallGrantsScheme.htm).

Please note – all grant applications under £20,000 will automatically be entered into the Small Grants Scheme.

### Response to the Review on Operational Research

A review of research in Operational Research (OR) in the UK was commissioned by EPSRC in conjunction with the Economic and Social Research Council (ESRC) and the OR Society, to complement the recent International Review of Mathematics.

The review took place in March 2004 and was carried out by a panel of international academics and UK practitioners under the chairmanship of Professor Frank van der Duyn Schouten. Professor van der Duyn Schouten presented his report on 8 September 2004 at the OR Conference in York.

The report on the review and EPSRC's response to the review can be found through the 'Reviews and Consultations' link on the Mathematical Sciences Programme area of the EPSRC website: [www.epsrc.ac.uk/ResearchFunding/Programmes/MathematicalSciences](http://www.epsrc.ac.uk/ResearchFunding/Programmes/MathematicalSciences).

### Advanced Research Fellowships

Applications are invited for the 2006 Advanced Research Fellowships exercise. Advanced Research Fellowships are awarded to outstanding researchers with between 3-10 years of postdoctoral experience. Fellows are expected to devote themselves to full-time research for the period of the award (up to 5 years), with the expectation that they will have established an independent research career of international standing by the end of the award.

Please note that application forms for the Advanced Research Fellowships will not be available on the Je-S System until the end of August. Closing date: **12.00 midday on 10 November 2005**.

Further details of the call can be found at the following link: [www.epsrc.ac.uk/CallsForProposals](http://www.epsrc.ac.uk/CallsForProposals).

### Senior Research Fellowships

Applications are invited for the 2005 Senior Research Fellowships exercise. Senior Research Fellowships are awarded to outstanding academic scientists and engineers of international repute, to enable them to devote themselves full-time to personal research. Up to 6 of these most prestigious EPSRC awards are made each year. The proposed research must be important and timely and should offer opportunities for major scientific advances. Fellowships are full time for up to 5 years and are tenable in the UK.

Please note that application forms for the Senior Research Fellowships will not be available on the Je-S System until the end of

August. Closing date: **12.00 midday on 10 November 2005**.

Further details of the call can be found at the following link: [www.epsrc.ac.uk/CallsForProposals](http://www.epsrc.ac.uk/CallsForProposals).

### Interdisciplinary Workshops with Follow-on Network Funding

In 2004 the Mathematical Sciences Programme held a series of regional seminars, in response to the International Review of Mathematics, which examined the challenges and issues facing the UK mathematical sciences community. One of the major issues raised was the difficulty facing researchers who want to work at the interface between mathematical sciences and other disciplines. The general consensus was that it seems to be relatively easy to get initial funding for workshops to begin examining where mathematical sciences could play a role in the other discipline; however, there appears to be a gap in funding from the initial workshop to reaching a stage where writing a full research proposal is possible. In essence more time is needed to understand the language and problems of the other discipline and to formulate possible new research directions.

In response to the problem, the Mathematical Sciences Programme has allocated funding for interdisciplinary workshops, with follow-on funding for research networks. The network funding will allow the interested workshop participants to continue to engage with each other, with the aim that the continued interactions will lead to new avenues of research, new collaborations and follow-on research projects. The closing date for this call is **12.00 midday on 1 November 2005**.

Further details can be found at the following link: [www.epsrc.ac.uk/CallsForProposals](http://www.epsrc.ac.uk/CallsForProposals).

### Researchers wanted to promote research

The tenth call document for 'Partnerships for Public Engagement' will be published on the EPSRC web site shortly. PPE projects communicate the excitement of fundamental and applied research in science and engineering to the public. Past projects have included: displays in shopping centres, buses and railway stations; interactive exhibits for science centres; competitions for school pupils; curriculum resources; videos; websites; debates and events for the general public. The closing date for the Public Engagement call is **19 October 2005**.

### 2005/2006 Call for Postdoctoral Fellowships in Theoretical Physics, Theoretical Computer Science and Mathematical Sciences.

The Physics, Information and Communications Technologies (ICT) and Mathematical Sciences Programmes are offering Postdoctoral Fellowships to enable the most talented young researchers to establish an independent research career, shortly or immediately after completing a PhD. The awards are for a period of up to three years and cover the salary cost of the Fellow and a small amount of travel and subsistence or equipment.

Please note that application forms for the Postdoctoral Fellowship scheme will not be available on Je-S until the end of August. Applicants should prepare all other documentation in advance to ensure sufficient time to complete the form before the deadline. Please see the call document for full details of all documentation required. The closing time for all of the calls is **12.00 midday on 18 October 2005**.

All details can be found at the following link: [www.epsrc.ac.uk/CallsForProposals/](http://www.epsrc.ac.uk/CallsForProposals/).

### INCREASING THE NUMBERS OF MATHS GRADUATES

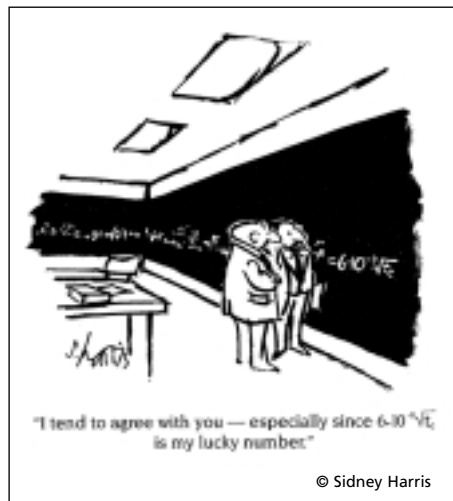
The HEFCE-funded study to develop proposals to increase the numbers of young people entering mathematical sciences courses in universities (see *Newsletter*, September 2005) is moving swiftly forward. It has announced details of four regional meetings to enable discussion of the problems, current activities and possible solutions.

The meetings will be held as follows, each starting at 10:00 am (registration and coffee):

- 31 October – Science Learning Centre, At Bristol, Harbourside, Bristol BS1 5DB
- 2 November – University of Coventry, Priory Street, Coventry CV1 5FB
- 4 November – Higher Education Academy, York Science Park, Innovation Way, Heslington, York YO10 5BR
- 9 November – Royal Statistical Society, 12 Errol Street, London EC1Y 8LX

Those interested in attending should contact Diane Crann, consultant to the Project, at [diane@churchillhouse.demon.co.uk](mailto:diane@churchillhouse.demon.co.uk).

For more information on the project and the meetings see [www.moremathsgrads.org.uk](http://www.moremathsgrads.org.uk).



### NEWS FROM THE INTERNATIONAL MATHEMATICAL UNION

#### Mathematics for Development?

Most of us by now are familiar with the critical role of science and technology as primary drivers of economic development. Economists began to clarify the role of new knowledge in economic productivity soon after World War II, beginning with the pioneering work of Robert Solow. Since then, many other scholars have estimated the rate of return on public investments in science and technology, which range from 20 to 67%; calculations of the social rate of return are as high as 110%. The power of basic research is even more apparent when one recalls how often its applications have led to new industries of great financial consequence. One thinks of the Internet (from basic research in communications networks), biotechnology (from basic research on the molecular mechanisms of DNA); the laser (from basic research on the interaction of light with atoms); transistors and integrated circuits (from basic research on the atom by Heisenberg and the development of quantum mechanics by Schrödinger). We must pause here to emphasize that mathematics is by no means an 'applied' science at its heart. Indeed, mathematicians have a kind of pride in inhabiting an elegant, abstract world that often seems remote from the everyday. Mathematical concepts have a mysterious esthetic quality; mathematical symbols are as hard to grasp for most people as hieroglyphics or clouds.

However, the world of mathematics seems to have entered a new age of interactivity with the other sciences. The attempt to understand the extreme complexities of string theory, for example, has led a group of theoretical physicists deep into mathematics, beyond traditional mathematical physics. The growing importance of cryptography to the

Internet has led theoretical computer scientists to the elusive concept of 'efficient computation.' One of the fastest-growing new partnerships is that between mathematicians and biologists in neuroscience, computational biology, immunology, epidemiology, drug design, and other areas.

A number of mathematicians, including Mohamed Hassan, Jacob Palis (former Secretary and President of IMU) and myself been involved in an effort called the Millennium Science Institute (MSI), which seeks to strengthen science and technology in the developing world. The African Mathematics MSI has been designed not only to strengthen graduate education but also to prepare and network students for the growing universe of interdisciplinarity. I am continually impressed by how many activities now depend on their quantitative component, including health care, environmental studies, energy, agriculture, economics, and other social sciences. Some African leaders have already recognized the need to place science and technology in their development budgets, and I cannot think it will be long before they see how many urgent issues require the participation of mathematicians.

Earlier in this century, no less a figure than the physicist Eugene Wigner wrote about 'the unreasonable effectiveness of mathematics in the natural sciences.' Nowadays, Professor Wigner might not be surprised to note this effectiveness in communications, transportation, finance, and, yes, economic development.

Phillip A. Griffiths  
Secretary of IMU

#### ICMI Study 16

The 16th Study of the International Commission on Mathematical Instruction (ICMI) will take place in Trondheim, Norway, from 27 June to 3 July 2006. The conference is devoted to the theme *Challenging mathematics in and beyond the classroom*. See [www.amt.edu.au/icmis16.html](http://www.amt.edu.au/icmis16.html).

### ICME-11

The 11th International Congress on Mathematical Education will be held in Monterrey, México, from 6-13 July 2008. The process of appointment of the International Programme Committee for ICME-11 is now completed. The Committee is chaired by Marcela Santillán, Rectora of the Universidad Pedagógica Nacional in Mexico.

### ICHM

The International Commission for the History of Mathematics (ICHM) continues to pursue its dual aims of encouraging the study of the history of mathematics and of promoting a high level of historically and mathematically sophisticated scholarship in the field internationally.

The ICHM is currently compiling a database of information on historians of mathematics around the world. Relating to this World Directory effort, the ICHM has published 'calls' to the international community of historians of mathematics to alert them to the existence of both the website and the questionnaire. It is the ICHM's hope that a reasonably complete database of historians of mathematics will be available by the end of 2005.

*Historia Mathematica* is the official journal of the ICHM. It appears four times annually and publishes roughly 525 pages of original research in the history of mathematics from all times and cultures. From 2003 to the present, it has been edited by Craig Fraser (Canada) and Benno van Dalen (Germany).

The Kenneth O. May Medal is awarded every four years to the historian or historians of mathematics whose work best exemplifies the high scholarly and intellectual contributions to the field that May worked so hard to achieve. It was awarded for the fifth time at a special ceremony in Utrecht, The Netherlands, on 30 June, 2005 to Henk Bos (The Netherlands) for his ground-breaking work on the history of seventeenth-century mathematics. For more information visit [www.math.uu.nl/ichm](http://www.math.uu.nl/ichm)

### ICM 2006

The next International Congress of Mathematicians ICM 2006 will start less than a year from now, on 22 August. Many aspects of the Congress are already fixed or under preparation. A full announcement, including the list of invited speakers and instructions for registration, among other useful material, will be distributed by the end of 2005.

Information will also be sent to pre-registered participants by means of occasional email messages, reminding deadlines or reporting relevant developments. Here are some of the important deadlines:

- Pre-registration: open.
- Satellite activities proposals: 31 October 2005.
- Applications for financial support: 1 January 2006.
- Reduced registration fee: from 1 January to 30 April 2006.
- Submission of abstracts for contributions: from 1 January to 30 March 2006.

We strongly recommend that you visit the ICM 2006 website ([www.icm2006.org](http://www.icm2006.org)) regularly for updated information on the scientific programme, satellite conferences, application form for financial support, proceedings and other matters related to the Congress. We look forward to your participation at the ICM 2006 in Madrid.

Manuel de Leon

President of the Organizing Committee

### Grant announcement: travel and/or local expenses for ICM2006

The International Mathematical Union (IMU) and International Congress of Mathematicians 2006 Local Organizing Committee will award grants to mathematicians to help them attend ICM2006.

Five grant categories have been established:

1. Young mathematicians from developing and economically disadvantaged countries
2. Senior mathematicians from developing

- and economically disadvantaged countries
3. Senior mathematicians from Latin America
4. Senior mathematicians from Mediterranean developing countries
5. Young Spanish mathematicians

Full details of all five grant categories are available on the ICM2006 website at: [www.icm2006.org/financialsupport](http://www.icm2006.org/financialsupport). All applications are to be submitted online by **1 January 2006**, through the ICM2006 website, as above. Enquires should be sent to [grants@icm2006.org](mailto:grants@icm2006.org).

Phillip A. Griffiths, Secretary  
International Mathematical Union

### Satellite meetings

Six new satellite meetings have been approved at the last meeting of the Executive Committee of ICM 2006:

- *Banach space theory: classical topics and new directions* (Cáceres, Spain) 4-8 September
- *CIMPA School on optimization and control* (Castro Urdiales, Cantabria, Spain) 28 August - 8 September
- *6th Meeting on game theory and practice* (Mediterranean Agro. Ins, Zaragoza, Spain) 10-12 July
- *Groups in geometry and topology* (Málaga, Spain) 4-8 September
- *Topics in mathematical analysis and graph theory* (Belgrade, Serbia and Montenegro) 1-4 September
- *Harmonic and geometric analysis with applications to PDEs* (Sevilla, Spain) 14-18 August

### IS THERE A 'MATHS GENE'?

A research team at the University of Cambridge has recently begun a project entitled 'Is there a "maths gene"?' the first major study of its kind in this area. The group, led by Professor Simon Baron-Cohen, is aiming to discover which genes, if any, are associated with mathematical ability. The researchers are considering the DNA of sib-

ling pairs, who on average should share 50% of their genes. If, amongst siblings who are good at mathematics, there are genes which are shared significantly more than 50% of the time, these may have some role in determining mathematical ability.

The project comprises two phases. The first stage involves completing a short online mathematics test, whilst in Phase 2 participants are invited to donate DNA via a simple, quick and non-invasive cheek swab.

If you and your sibling both have an A grade at A Level mathematics, and you would like to take part in the study, more details on the team's research and how to register can be found at: [www.cambridgepsychology.com/maths](http://www.cambridgepsychology.com/maths). Please note that all participants must be aged 16 years or over, and must have an A grade at A Level mathematics. The study has the approval of the University Ethics Committee, and all data will remain confidential. In Phase 2, the DNA will be stored anonymously.

Alex Pollitt

Department of Experimental Psychology  
Cambridge University

### GERMUND DAHLQUIST PRIZE

The Society for Industrial and Applied Mathematics has awarded the 2005 Germund Dahlquist Prize to Professor Desmond J. Higham (University of Strathclyde). The prize, established in 1995, has previously been awarded to:

- |      |                  |
|------|------------------|
| 1995 | J. M. Sanz-Serna |
| 1997 | Andrew M. Stuart |
| 1999 | Linda R. Petzold |
| 2001 | Christian Lubich |
| 2003 | Sebastian Reich  |

The prize is awarded to a young scientist (normally under 45) for original contributions to fields associated with Germund Dahlquist, especially the numerical solution of differential equations and numerical methods for scientific computing.



## LMS POPLAR LECTURES

### DVDs and VIDEOS

The LMS Popular Lectures aim to present exciting topics, and interesting applications, in mathematics to a wide audience, including those studying mathematics post 16. The Lectures given since 1998 are available to buy on video and DVD (DVD only for the 2005 titles); earlier lectures can be hired on video. These recordings provide good enrichment material for schools, as well as students and lecturers in university mathematics departments.

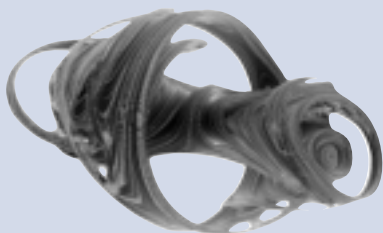
### 2005 Lectures

#### Available to purchase on DVD from November

Dr Joan Lasenby

#### The Mathematics of Shrek

'How does mathematics, coupled with immense computational power, produce the stunning visual effects in movies like Shrek and Toy Story?'



Dr Alan Slomson

#### What Computers Cannot Do

'Computers can solve many mathematical problems. But, no matter how powerful they become, mathematics tells us there are limits to their problem-solving ability.'

### Recent titles include:

*Big Money Mathematics* Professor K. Binmore (UCL)  
Can mathematics raise billions of pounds? Find out what happens when the mathematics of game theory is applied to economics.

*A Spoonful of Maths Helps the Medicine Go Down*  
Professor H. Byrne (Nottingham)  
What role should mathematics play in the field of medicine?  
Could it be the new tonic that doctors need to cure our ills?

*Mathematics, Magic and the Electric Guitar* Dr D.J. Acheson (Oxford)  
Maths is sometimes magical. But can it explain the legendary Indian Rope Trick? And what has it got to do with playing the guitar?

*The Music of the Primes* Professor M.P.F. du Sautoy (Oxford)  
A million dollars awaits the person who can unravel the mystery of the hidden music that explains the cacophony of the prime numbers.

*Our Dynamic Sun* Dr H.E. Mason (Cambridge University)  
Mathematics helps to unravel the mysteries of the Sun, by looking beyond visible light to amazing ultra-violet and X-ray observations.

*Geometry Ancient and Modern* Dr J.R. Silvester (King's College London)  
Euclid found many curious properties of circles – this talk describes a theorem he could have proved but didn't, and gives some more modern approaches to it.

### Prices

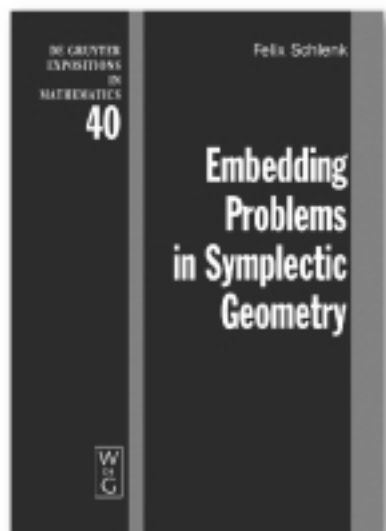
DVDs: £12.00 each, £9.50 for two or more

Videos (to purchase): £11.00 each  
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(while stocks last)

Videos (to hire): £5.00 each

Further details and an order form can be found via the LMS website: [www.lms.ac.uk/activities/education\\_com/videos.html](http://www.lms.ac.uk/activities/education_com/videos.html) or by contacting Isabelle Robinson (email: [robinson@lms.ac.uk](mailto:robinson@lms.ac.uk), tel: 020 7291 9979).

Just released



Felix Schlenk

■ **Embedding Problems  
in Symplectic Geometry**

2005. X, 250 pages. Cloth.  
€ [D] 98.00 / sFr 157.00 /  
for USA, Canada, Mexico US\$ 99.95.  
ISBN 3-11-017876-1

WWW.DEGRUYTER.DE

Symplectic geometry is the geometry underlying Hamiltonian dynamics, and symplectic mappings arise as time-1-maps of Hamiltonian flows. The spectacular rigidity phenomena for symplectic mappings discovered in the last two decades show that certain things cannot be done by a symplectic mapping. For instance, Gromov's famous „non-squeezing“ theorem states that one cannot map a ball into a thinner cylinder by a symplectic embedding.

The aim of this book is to show that certain other things can be done by symplectic mappings. This is achieved by various elementary and explicit symplectic embedding constructions, such as „folding“, „wrapping“, and „lifting“. These constructions are carried out in detail and are used to solve some specific symplectic embedding problems.

The exposition is self-contained and addressed to students and researchers interested in geometry or dynamics.



Prices are subject to change.

## LONDON MATHEMATICAL SOCIETY

in association with the Isaac Newton Institute for Mathematical Sciences

### Spitalfields Day

#### Einstein and Beyond

**Seminar Room 1, Isaac Newton Institute,  
Monday 7 November 2005**

Organiser: Paul Tod (Oxford)

- 14:00 – 15:00** **Abhay Ashtekar (Penn State)**  
*Quantum Riemannian geometry and its ramifications*
- 15:00 – 16:00** **Karsten Danzmann (Albert-Einstein-Institut & Hannover)**  
*Gravitational wave astronomy: The large detectors are going into operation!*
- 16:00 – 16:30** **Tea**
- 16:30 – 17:30** **Roger Penrose (Oxford)**  
*(title to be advised)*
- 17:30 – 18:00** **Wine and Beer Reception**

The talks at this meeting are aimed at a wide mathematical audience (graduate students working in classical and quantum theories of gravity are especially welcome) and cover a range of theoretical and experimental developments growing from Einstein's General Theory of Relativity. Anyone interested is welcome to attend. This Spitalfields Day is linked to the Isaac Newton Institute programme *Global Problems in Mathematical Relativity*.

Please let Tracey Andrew at the Institute know by **31 October 2005** if you intend to come (tel: 01223 335984; fax: 01223 330508; email: t.andrew@newton.cam.ac.uk).

There are limited funds available to assist research students to attend, please apply by **31 October** to Tracey Andrew by email or post at the Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH.

Scientific enquiries may be addressed to Paul Tod (paul.tod@st-johns.oxford.ac.uk).

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[www.cambridge.org/mathematics](http://www.cambridge.org/mathematics) 

## NONCOMMUTATIVE ANALYSIS, QUANTUM THEORY AND STOCHASTIC ANALYSIS

### A meeting in honour of Robin Hudson

A meeting will be held at Lancaster University on Friday and Saturday 21-22 October to mark Robin Hudson's 65th birthday. The first day will consist of more general talks on noncommutative analysis, quantum theory and stochastic analysis – areas in which Robin has made a contribution. The second day will focus on quantum probability, including quantum stochastic calculus and its applications. Speakers will include:

- David Applebaum (Sheffield)
- Viacheslav Belavkin (Nottingham)
- Rajarama Bhat (ISI, Bangalore)
- Cho-Ho Chu (QMW)
- David Elworthy (Warwick)
- Hans Maassen (Nijmegen)
- Roger Plymen (Manchester)
- Michael Schurmann (Greifswald)
- Kalyan Sinha (ISI, Delhi Centre)
- Ray Streater (KCL)
- Tony Sudbery (York)
- Aubrey Truman (Swansea)

The meeting is supported by the University of Lancaster and an EU RTN in Quantum Probability and Applications. For further information contact Martin Lindsay ([j.m.lindsay@lancaster.ac.uk](mailto:j.m.lindsay@lancaster.ac.uk)) or visit [www.maths.lancs.ac.uk/department/events/conferences/NCAQ TSA](http://www.maths.lancs.ac.uk/department/events/conferences/NCAQ TSA)

## VISIT OF PROFESSOR B.V. RAJARAMA BHAT

Professor Rajarama Bhat (Indian Statistical Institute, Bangalore Centre) is visiting Lancaster University from 4 - 24 October, giving lectures on 14 October and (in the Meeting, Noncommutative Analysis, Quantum Theory and Stochastic Analysis) on

22 October. He is supported by a Swarna Jayanthi Fellowship from the Department of Science and Technology, India. His research interests are in dilation theory, product systems and quantum stochastic analysis. For further information contact Martin Lindsay ([j.m.lindsay@lancaster.ac.uk](mailto:j.m.lindsay@lancaster.ac.uk)).

## LEVERHULME TRUST AWARDS

The following mathematicians have been awarded research fellowships by the Trustees of the Leverhulme Trust, under Schemes administered by their Research Awards Advisory Committee.

### Research Fellowships

- Stephen Buckland (Professor of Statistics, University of St Andrews) *Flexible methods for defining and fitting complex population dynamics models*
- Ke Chen (Reader, Department of Mathematical Sciences, University of Liverpool) *Fast numerical algorithms for solving image problems*
- Ian Melbourne (Professor of Mathematics, University of Surrey) *Stability of mixing and speed of mixing for flows*
- Alexander Pushnitski (Department of Mathematics, King's College London) *Scattering matrix for Schrödinger operators*
- Simon Scott (Reader in Pure Mathematics, King's College London) *A research monograph on spectral invariants*
- Stuart Townley (Professor, Department of Mathematical Sciences, University of Exeter) *Robustness tools for ecology and biology*
- Keke Zhang (Professor of Fluid Dynamics, University of Exeter) *Unite the theories of inertial oscillation and thermal instabilities in rotating systems*

### Study Abroad Fellowships

- Anthony Carbery (Colin Maclaurin Professor of Mathematics, University of Edinburgh) *Geometrical inequalities in functional analysis*

- Jane B. Lawrie (Senior Lecturer, Department of Mathematics, Brunel University) *Elastic wave scattering at a vertical interface*

#### Emeritus Fellowships

- Dmitri Alekseevsky *Geometric Structures, symmetries and supergravity*
- Louis Lyons *Statistical techniques for particle physics*
- Edward A.W. Maunder *Equilibrium models in structural engineering*

#### Early Career Fellowships

- Marie Ericsson\* (Department of Applied Mathematics & Theoretical Physics, University of Cambridge) *Implementation of topological quantum computation*
- Gem E. Stapleton (School of Computing, Mathematical & Information Sciences, University of Brighton) *The mathematics of diagrammatic logical systems*

\*award still to be finalised

## SUPPORTING POSTGRADUATES WHO TEACH MATHEMATICS & STATISTICS

The Maths, Stats & OR Network is pleased to announce the details of its inaugural series of events to support postgraduate students within mathematics and statistics who teach as part of their programmes of study.

In order to provide discipline specific support, advice and guidance to postgraduate students who teach Mathematics and Statistics, the Network will be offering four identical regional events hosted by academics who have significant experience of teaching and learning within HE. The one-day events will cover issues such as planning and preparing for teaching, facilitating problem solving classes, encouraging participation and providing support, and assessing student work and providing feedback. One of the sessions will allow students to discuss any prob-

lems or concerns they may have, and to allow an opportunity for them to seek solutions both from fellow delegates and the presenters. For this session, students are encouraged to bring with them any materials that they may use in their teaching.

Each event is applicable both to postgraduates who are new to teaching this academic year, as well as those who have prior experience of teaching. There is no charge for delegates who wish to attend one of these events. However, a cancellation fee will be charged to those who register but fail to attend without providing at least one week's notice; lunch and refreshments will be provided.

- 26 October: University of Birmingham (Birmingham)
- 28 October: University of Bath (Swindon Campus)
- 31 October: The London Mathematical Society (London)
- 2 November: The Higher Education Academy (York)

For further details and to book online visit <http://mathstore.ac.uk/workshops> or email [info@mathstore.ac.uk](mailto:info@mathstore.ac.uk).

## CAMBRIDGE PHILOSOPHICAL SOCIETY

### The Honorary Fellows Prize Lecture 2005

Professor John Horton Conway, FRS (John von Neumann Professor of Mathematics, Princeton University) will give a lecture entitled *The Free Will Theorem* in The Lady Mitchell Hall, Sidgwick Site, Sidgwick Avenue, Cambridge, on Wednesday 9 November at 5.15 pm. This scientific lecture is open to everyone who is interested.

The Cambridge Philosophical Society, founded in 1819, is a wholly independent and self-governing learned society for the promotion of natural sciences, including mathematics and all applied aspects such as engineering and medicine. For more information please contact Mrs B. Larnar,

Executive Secretary, Cambridge Philosophical Society, Central Science Library, Arts School, Bene't Street, Cambridge CB2 3PY (tel: 01223 334743, email: [philosoc@hermes.cam.ac.uk](mailto:philosoc@hermes.cam.ac.uk), web: [www.cam.ac.uk/societies/cps](http://www.cam.ac.uk/societies/cps)).

## EDINBURGH MATHEMATICAL SOCIETY

The following meetings have been arranged for the Edinburgh Mathematical Society on Fridays during the 2005-06 session:

### 2005

- 14 October (Edinburgh) AGM and Presidential Address by P. Rowlinson
  - 11 November (Glasgow) M. Liebeck
  - 9 December (Heriot-Watt) B. Leimkuhler
- ### 2006
- 20 January (Edinburgh) H.M. Byrne
  - 17 February (Edinburgh) L.A. Goldberg
  - 17 March (Dundee) P.N.J. Higham
  - 28 April (Aberdeen) A.G. Robertson
  - 26 May (St Andrews) M. Geck

For further information contact the Meetings Secretary, Tom Lenagan, School of Mathematics, University of Edinburgh, King's Buildings, Edinburgh, EH9 3JZ ([tom@maths.ed.ac.uk](mailto:tom@maths.ed.ac.uk)).

## NBFAS

There will be a meeting of the North British Functional Analysis Seminar (NBFAS) at the University of Glasgow, Department of Mathematics, taking place on Friday 4 and Saturday 5 November as follows:

### Friday

Alain Valette (Université de Neuchâtel, Switzerland)

2.30 pm *Affine isometric actions on Banach spaces*

4.00 pm *Critical exponent and the first  $L^p$ -cohomology of groups*

### Saturday

Stefanie Petermichl (University of Texas at Austin, USA)

9.30 am and 11.00 am *Product BMO spaces*

For further information visit [www.maths.leeds.ac.uk/~nbfas](http://www.maths.leeds.ac.uk/~nbfas).

## GROUP THEORY AND ITS APPLICATIONS

### Manchester-Birmingham-Imperial

As part of the group and representation theory triangle, an afternoon of lectures aimed at postgraduate students will be held on 19 October at the School of Mathematics, University of Birmingham. The speakers will aim their talks at first year postgraduates. This is an ideal opportunity for new postgraduate students to meet other postgraduates from other institutions. The speakers are

14:00 Rachel Camina (Cambridge)  
15:00 Joseph Chuang (Bristol)  
16:30 Derek Holt (Warwick)

Please encourage all your postgraduate students to attend. I am sure that they will have a valuable afternoon and form useful contacts for their PhD studies. Having said that the event is aimed at postgraduates, I emphasise that of course anybody who wants to attend is more than welcome. So that I can make sure to provide enough tea and biscuits please let me know if you intend to come to the meeting ([c.w.parker@bham.ac.uk](mailto:c.w.parker@bham.ac.uk)).

Chris Parker  
University of Birmingham

## MASTERMIND

Robin Chapman from Exeter University, an LMS member, is a contestant in the 2005 series of the BBC quiz programme Mastermind ([www.bbc.co.uk/entertainment/mastermind](http://www.bbc.co.uk/entertainment/mastermind)). His specialist subject in the first-round match broadcast on 20 September was *The Life and Music of Igor Stravinsky*. He scored twenty-eight points, winning the heat by a margin of one point. Robin's second-round match, where his specialist subject will be *One Foot in the Grave*, is scheduled to be broadcast on Tuesday 18 October at 8 pm on BBC2.

## GLASGOW MATHEMATICAL JOURNAL

The *Glasgow Mathematical Journal* is published by Cambridge University Press and covers new research over a broad range of topics in pure and applied mathematics.

2006 subscriptions to the Glasgow Mathematical Journal are offered at the rate of £45. LMS members wishing to subscribe to the journal should send subscriptions directly to: Dr C. Athorne, Secretary to the GMJ, Department of Mathematics, University of Glasgow, University Gardens, Glasgow G12 8QW, UK.

Cheques should be made payable to the 'Glasgow Mathematical Journal Trust'. Further information concerning the journal is available from the publisher's web page: <http://titles.cambridge.org/journals>.

## Special offer to all LMS members to the 2006 Subscription of MATHEMATICAL PROCEEDINGS

Published in six volumes per annum *Mathematical Proceedings* is one of the few high-quality journals publishing original research papers that cover the whole range of pure and applied mathematics, theoretical physics and statistics. All branches of pure mathematics are covered, in particular logic and foundations, number theory, algebra, geometry, algebraic and geometric topology, classical and functional analysis, differential equations, probability and statistics. On the applied side, mechanics, mathematical physics, relativity and cosmology are included.

Members of the London Mathematical Society are offered a preferential reduced rate of £95 (the standard personal rate is £405).

To take advantage of this offer, please contact the Executive Secretary, at CAMBRIDGE PHILOSOPHICAL SOCIETY, Central Science Library, Arts School, Bene't Street, Cambridge CB2 3PY, Telephone: +44 (0) 1223 334743, Fax: +44 (0) 1223 334735, Email: [philosoc@hermes.cam.ac.uk](mailto:philosoc@hermes.cam.ac.uk)

*The Cambridge Philosophical Society, founded in 1819, is a wholly independent and self-governing learned society for the promotion of natural sciences, including mathematics and all applied aspects such as engineering and medicine.*

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The *Quarterly Journal of Mathematics* publishes original contributions to pure mathematics including areas such as algebra, differential geometry, and global analysis.

Oxford University Press are pleased to offer members of the London Mathematical Society a 2006 subscription to the *Quarterly Journal of Mathematics* at the special rate of £107/US\$203. The standard personal rate is £220/US\$418 so this represents a discount of more than 50%.

To take advantage of this offer, contact: Journals Subscription Department, Oxford University Press, Great Clarendon Street, Oxford, OX2 6DP, UK. Tel: +44 (0)1865 353907 Fax: +44 (0)1865 353485 E-mail: [jnl.cust.serv@oxfordjournals.org](mailto:jnl.cust.serv@oxfordjournals.org)

## RECORDS OF PROCEEDINGS AT MEETINGS

### REGIONAL ORDINARY MEETING

held on *Friday 8 July 2005* at the University of York. About 50 members and visitors were present for all or part of the meeting. The meeting began at 2:00 pm, with Professor F.C. KIRWAN, FRS in the Chair.

The Record of the Proceedings of the Society Meeting held on 18 May 2005 was signed as a correct record.

Professor A. Sudbery introduced a lecture given by Dr P. Horodecki on *Quantum communication and entanglement: selected phenomena and open problems*.

Professor A. Sudbery then introduced a lecture given by Dr C.H. Bennett on *Information is quantum*.

Professor Kirwan expressed the thanks of the Society to the local organiser and the speakers for putting on such an excellent meeting.

After the meeting an open discussion on the LMS-IMA Frameworks Study Initiative was led by Professor Kirwan and Dr Stephen Huggett, LMS Programme Secretary.



## LMS NORTHERN REGIONAL MEETING AND WORKSHOP 2005

The Northern Regional Meeting of the London Mathematical Society was held on Friday 8 July in the Biology building at the University of York. The opening of the meeting by the President, Frances Kirwan, was followed by lectures by Pawel Horodecki of the Gdańsk University of Technology and Charles Bennett of IBM Research, Yorktown. The afternoon concluded with a discussion of the Framework Study Initiative led by Frances Kirwan and Stephen Huggett.

Pawel Horodecki is well known for the work that he has done, together with his father and brothers, on criteria to decide whether the parts of a quantum system are entangled with each other in a particular (mixed) state, and if so whether this entanglement can be distilled into pure states of maximal entanglement. In a clear and wide-ranging lecture, he described a number of the phenomena encountered in the study of quantum communication and entanglement, and stated several open problems in this field.

Charles Bennett's name is familiar to second-year undergraduates at York, who see it associated with the discoveries of quantum key distribution, superdense coding and quantum teleportation in our course on Recent Advances in Mathematics. He is also a great wit and a very good photographer, as he demonstrated in his highly entertaining lecture, which concluded with an account of recent work on the quantum reverse Shannon theorem. The problem is to use a noiseless channel to simulate a noisy one, and Bennett showed this can be done in certain cases by 'embezzling' entanglement from a large shared state. The notes for this part of Bennett's lecture can be seen at [www-users.york.ac.uk/~lc181/cb.pdf](http://www-users.york.ac.uk/~lc181/cb.pdf).

The meeting was preceded by a three-day

workshop on *Quantum Information Theory*. Among the eight other speakers were more names familiar to all students of the subject, including Richard Josza, Sandu Popescu and Reinhard Werner, who presented a further wide range of open problems.

Alexander Klyachko showed how techniques from symplectic geometry, related to those that he used to solve Horn's problem on hermitian matrices, could be used to solve the quantum marginal problem. The other speakers were Andreas Winter, Frank Verstraete, Markus Grassl and Jens Eisert. The notes for many of these talks can be seen at [www-users.york.ac.uk/~lc181/QIT.html](http://www-users.york.ac.uk/~lc181/QIT.html), which also shows details of the poster session held on Friday at lunchtime.

Many of the fifty participants in the workshop commented on the high quality of the talks, and felt that the LMS had created a valuable opportunity for learning and discussion.

Tony Sudbery  
University of York

## 70TH ANNIVERSARY OF THE CHINESE MATHEMATICAL SOCIETY

*The Chinese Mathematical Society has just celebrated its 70th birthday with a conference in Weihai, and sponsored eight mathematicians from developing countries to attend by providing all local expenses. The IMU coordinated an appeal for support for the travel expenses for these eight, and in response the LMS Programme Committee awarded a grant to Sizwe Mabizela of Rhodes University, South Africa, to attend. Here is his report.*

I left South Africa on Friday 22 July 2005. My departure date coincided with the start of a major industrial action by the employees of South African Airways. When I arrived at the Port Elizabeth airport, all South African Airways flights had been cancelled. Unfortunately I had to join the throng of pas-

sengers who found themselves stranded at the airport. After negotiations between South African Airways and British Airways representatives, I managed to get a seat on British Airways. I arrived just in time in Johannesburg to catch the Singapore Airlines flight to Singapore and then on to Beijing.

In Beijing I met Professor John Ball who was traveling with his family to the same conference. At Weihai airport we were met by students who had volunteered to assist with conference arrangements. It was such a wonderful experience to be met at the airport by enthusiastic and energetic young people who were eager to assist in every possible way. We arrived at the International Academic Centre of Shandong University around 22.00.

On Sunday morning after breakfast, I went through all the registration procedures. As the day progressed, more and more people were arriving. Before long, the International Academic Centre of Shandong University was abuzz with activities, including book displays.

It is estimated that about 400 mathematicians attended the 70th anniversary of the founding of the Chinese Mathematical Society. It was a humbling experience to be in the company of such mathematical luminaries as Noga Alon, Martin Groetschel, Efim Zelmanov, John Ball, Jean-Pierre Bourguignon, Nick Katz, Shing-Tung Yau, Yum-Tong Siu, and other mathematicians from the Chinese Academy Sciences.

The opening ceremony included presentations of the Shiing S. Chern Mathematics Award, Zhong Jiaqing Mathematics Award, and Hua Loo-Keng Mathematics Award to various recipients. It was so wonderful to see Chinese Mathematicians recognized for their contribution to Mathematics. I was especially impressed with the recognition of the recent MSc and PhD graduates.

The plenary lectures were of outstanding quality. I was particularly interested in the one given by Professor Martin Groetschel. His lecture was on the mathematical aspects of public

transport. My interest in it derived largely from the fact that South Africa will be hosting the 2010 World Cup. I saw that event as providing us with an opportunity to popularize mathematics in South Africa. Most of the session lectures were presented in Chinese. This was understandable as the audience was nearly 100% Chinese, but it presented a bit of a challenge for me as my knowledge of Chinese is limited to about five words! There were a few session talks that were presented in English. These were of very high quality indeed.

Wednesday afternoon was set aside for a visit to Liugong Island. It was such an enriching experience to go through the memorial site of the Sino-Japanese War of 1894-1895.

The informal interactions I had with individual Chinese mathematicians were particularly helpful. We were able to exchange ideas on some areas of common interest with a view to establishing long-term relationships that were mutually beneficial.

Our hosts took good care of us. I would like to single out Ms Huijuan Wang who was always enquiring about our welfare and was ready to assist in every possible way. The students who volunteered to assist with the conference were absolutely great.

I wish to convey my hearty thanks and appreciation to the London Mathematical Society for paying my airfare to and from Weihai. Words will never be adequate to express my gratitude to the Chinese Mathematical Society for their warmth and hospitality. Xie-Xie!

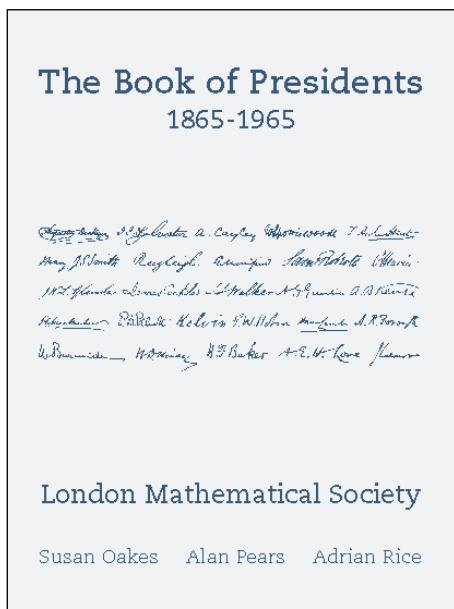
Many thanks to the International Mathematical Union for this initiative to integrate mathematicians from developing countries into the mainstream international research arena. The isolation that some of us experience in relatively obscure parts of the world can be very debilitating. Once again, many thanks and all strength to the London Mathematical Society.

Sizwe Mabizela  
Rhodes University

BOOK REVIEW

**The Book of Presidents 1865–1965**, edited by Susan Oakes, Alan Pears and Adrian Rice, London Mathematical Society 2005; ISBN 0-9502734-1-4, pp. ix + 157, £19 (LMS members £15)

This lovely little book is one of the best the London Mathematical Society has published. It is packed with interesting and well-organised information about the Society. Its substance is contained in the 100 pages devoted to the first 50 presidents. Traditionally the president has always been chosen from amongst the members who are Fellows of the Royal Society. They hold office for two years. Each president who served in the period 1865 to 1965 is described in two pages, a photograph and, facing it, a one-page biography supplemented with full reference to the contemporary obituaries published by the LMS and/or the Royal Society (or, rarely, other sources) on which it was based. They form a multiset of people since G. H. Hardy served twice. This gallery of presidents is supplemented with a wealth of useful introductory material and appendices. There is an unusually informative preface by Robert Curtis, followed by a list of sources of the pictures, a chronology of the LMS, and a general history of the LMS in the form of an Introduction by Adrian



Rice. Following the 50 presidents 1865–1965 we find brief accounts of the 21 presidents 1965–2005, a list of the published versions of presidential addresses, a list of the De Morgan medallists with photographs and biographies of those who did not also serve as president, a list of honorary members of the Society, a glossary and an index.

This is a book that can – and should – both be read from cover to cover and dipped into. Reading it through from first page to last one gains a clear view of the history of an important institution, albeit a view which is focused through a round-up of its presidents. Dipping into it randomly one sees some of the quirks and oddities that make an important institution human.

The introduction by Adrian Rice, who, with Robin Wilson, is one of the main historians of the LMS, provides the correcting lens which helps clarify the reader's understanding of the origins and development of the Society, setting the presidents into their context and giving the wider picture. Professor Rice describes the background to the founding of the Society by George De Morgan and Arthur Ranyard, famously supported and assisted by George's father, Augustus De Morgan, the first president; he sets the new Society

into its national and international context; he discusses the growth of the Society and of its publishing business; he discusses the evolution and changing character of the Society as applied mathematics gradually played less and less of a part in its meetings and its publications; he discusses the changes of fortune of the Society over the years; he discusses the contributions of some of the great but relatively unknown officers, as well as the contributions and the influence of much better known members such as G. H. Hardy.

The first 50 presidents come over as an engaging lot. Most names are still familiar; some, but only a few, would be forgotten were it not for this book and the serial publication of their photographs by Jeremy Gray, Susan Oakes and Alan Pears in the LMS Newsletter from the late 1980s onwards (out of which this book has grown). One aspect of the collection is a stark reminder of a disturbing fact about mathematical society (both in the narrow and in the broader sense): only one president in the first 100 years was a woman, namely M. L. Cartwright 1961–63; moreover, our present president, F. C. Kirwan, is only the second woman to hold the office. Another is the picture it sketches of social and economic change. In the early days we see a businessman, a civil servant, an ex-solicitor amateur scientist, a judge, a schoolteacher, and a barrister serving as president, whereas from 1894 onwards all presidents have been academics of one kind or another. On a similar theme, the portraits alone illustrate changing fashion, or perhaps clear signs of the implementation of cutting-edge research: we see 13 of the first 17 presidents (1865–1900) wearing beards and 13 of the 18 presidents 1890–1926 wearing moustaches – whereas only 7 of the first 36 presidents were clean-shaven, only one of

the last 13 male presidents 1935–1965 sported facial hair.

Two of the most devoted and effective recent servants of the LMS are responsible for the majority of this book. We owe to Susan Oakes not only the smooth and efficient running of the Society for a very long time, but also the initiative to bring the valuable Tucker collection of photographs up to date. We owe to Alan Pears not only his long years of efficient and friendly service in various capacities, in particular in the important and demanding role of Meetings and Membership Secretary, but also his initiative in compiling the biographies that go with the pictures. They are to be congratulated on what they have created here.

In his Preface Robert Curtis writes 'It is hoped that in 2015, when the Society celebrates its sesquicentenary, the book will be updated with a double-page entry devoted to each of the first 75 presidents.' He does not tell us who is doing the hoping. I can, however, prove the truth of his assertion: even if no-one else were, I am. A second hope (and expectation) should be added, however, namely that there will then be a considerable number of the more recent one-page biographies that will not have been compiled from obituaries. Another hope is expressed by Robert Curtis at the end of his Preface: 'that this volume will make LMS members proud of their Society, and non-members aware of the significant role the Society has played in the development of British mathematics.' I am confident that all members of the Society, and indeed, all readers of this remarkable book, will share these three hopes.

Peter M Neumann  
Queen's College, Oxford

Editors' note: The book may be ordered on your annual subscription renewal form enclosed with this Newsletter.

ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES

**NON-EQUILIBRIUM DYNAMICS OF  
INTERACTING PARTICLE SYSTEMS**

**27 March – 7 April 2006**

Supported by the European Commission, Sixth Framework Programme  
Marie Curie Conferences and Training Courses - MSCF-CT-2004-516558

in association with the Newton Institute programme entitled  
*Principles of the Dynamics of Non-Equilibrium Systems* (9 January to 30 June 2006)

**Organisers:** J.L. Cardy (Oxford), M.R. Evans (Edinburgh), D. Mukamel (Weizmann),  
H. Spohn (München).

**Theme of School:** The school will focus on the statistical mechanics of systems driven away from thermal equilibrium. Recently, the understanding of nonequilibrium steady states and their mathematical structure has advanced considerably through the exact solution of simple models of interacting particle systems. These studies have revealed intriguing phenomena such as one-dimensional phase transitions and the existence of large deviation functionals. On the other hand, more generic approaches such as the fluctuation theorem have been developed. On the experimental front progress has been made in probing biophysical transport and granular media. The aim of the school is to integrate the various aspects mentioned above. Lecturers will deliver mini courses bringing young researchers from different backgrounds to the forefront of this broad and rapidly developing field.

**Invited Lecturers:** J.L. Cardy (Oxford), D. Dhar (TIFR, Mumbai), B. Derrida (ENS, Paris), D.J. Evans (Canberra), H. Hinrichsen (Würzburg), C. Jarzynski (Los Alamos), Y. Kafri (Technion), R. Livi (Firenze), S.N. Majumdar (Orsay), D. van der Meer (Twente), A. Schadschneider (Köln), G.M. Schütz (Jülich), U. Tauber (Virginia), H. Spohn (München), A. Vespignani (Indiana).

Each invited lecturer will give a mini course of about three hours' duration.

**Location and cost:** The school will take place at the Newton Institute and accommodation for participants will be provided in single study bedrooms with shared bathroom at Wolfson Court. The conference package, costing £965, includes accommodation, breakfast and dinner from dinner on Sunday 26 March to breakfast on Saturday 8 April, and lunch and refreshments during the days that lectures take place. Substantial financial support is available for EU research students and post doctoral researchers with fewer than ten years research experience. Participants who wish to attend but do not require the Conference Package will be charged a registration fee of £40. Self-supporting participants are very welcome to apply.

**Poster session:** There will be a poster session during the conference. If you wish to be considered to present a poster please indicate your request on the application form.

**Further information and application forms** are available from the web at:  
[www.newton.cam.ac.uk/programmes/PDS/pdsw02.html](http://www.newton.cam.ac.uk/programmes/PDS/pdsw02.html). Completed application forms should be sent to Tracey Andrew, Programme & Conference Secretary, Isaac Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH or via email ([t.andrew@newton.cam.ac.uk](mailto:t.andrew@newton.cam.ac.uk)).

Closing date for the receipt of applications is **30 November 2005**.

**CALENDAR OF EVENTS**

This calendar lists Society meetings and other events publicised 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 on the Society's website ([www.lms.ac.uk/meetings/calendar.html](http://www.lms.ac.uk/meetings/calendar.html)).

**OCTOBER 2005**

- 3-4 Metric Number Theory and Its Applications, York University (340)
- 5 Conference in Honour of Tom Willmore, Durham University (340)
- 5 Who Invented Algebra? Gresham College, London (340)
- 7 LMS Algorithms Meeting, London (341)
- 7-8 Euclid and his Heritage Conference, Oxford University (340)
- 11 A Celebration of Mathematical Thought, Oxford University (340)
- 14 Edinburgh Mathematical Society Meeting, Edinburgh University (341)
- 19 Group Theory and its Applications Lectures, Birmingham University (341)
- 26 Who Invented the Equals Sign? Gresham College, London (340)
- 26-29 Sixth Century Conference in Representation Theory, Aberdeen University (340)
- 29-30 Heilbronn Institute for Mathematical Research, Opening Conference, Bristol University (340)

**NOVEMBER 2005**

- 3 History From Below: Mathematics, Instruments and Archaeology, Gresham College, London (340)
- 4-5 NBFAS, Glasgow University (341)
- 7 Einstein and Beyond, LMS Spitalfields Day, INI, Cambridge (341)
- 9 The Free Will Theorem Lecture, J.H. Conway, Cambridge (341)
- 11 Edinburgh Mathematical Society Meeting, Glasgow University (341)

- 16 Who Invented the Calculus? Gresham College, London (340)
- 18 LMS Annual General Meeting, London (341)
- 19 Belfast Functional Analysis Day, QUB (337)
- 22-26 Kingfisher DELTA 05, Fraser Island, Australia (336)
- 24-1 Dec Reform, Revolution & Paradigm Shifts in Mathematics Education, Malaysia (338)
- 27-30 LUMS International Conference on Mathematics, Lahore, Pakistan (339)

**DECEMBER 2005**

- 9 Edinburgh Mathematical Society Meeting, Heriot-Watt University (341)
- 17-19 International Symposium on Recent Advances in Mathematics and its Applications, Calcutta, India (340)
- 12-16 Einstein Constraint Equations Conference, INI, Cambridge (334)
- 19-21 Cryptography and Coding IMA Conference, Royal Agricultural College, Cirencester (334)

**JANUARY 2006**

- 9-13 Relaxation Dynamics of Macroscopic Systems Conference, INI, Cambridge (338)
- 20 Edinburgh Mathematical Society Meeting, Edinburgh University (341)
- 23-27 Models and Methods for Human Genomics Conference, Italy (340)

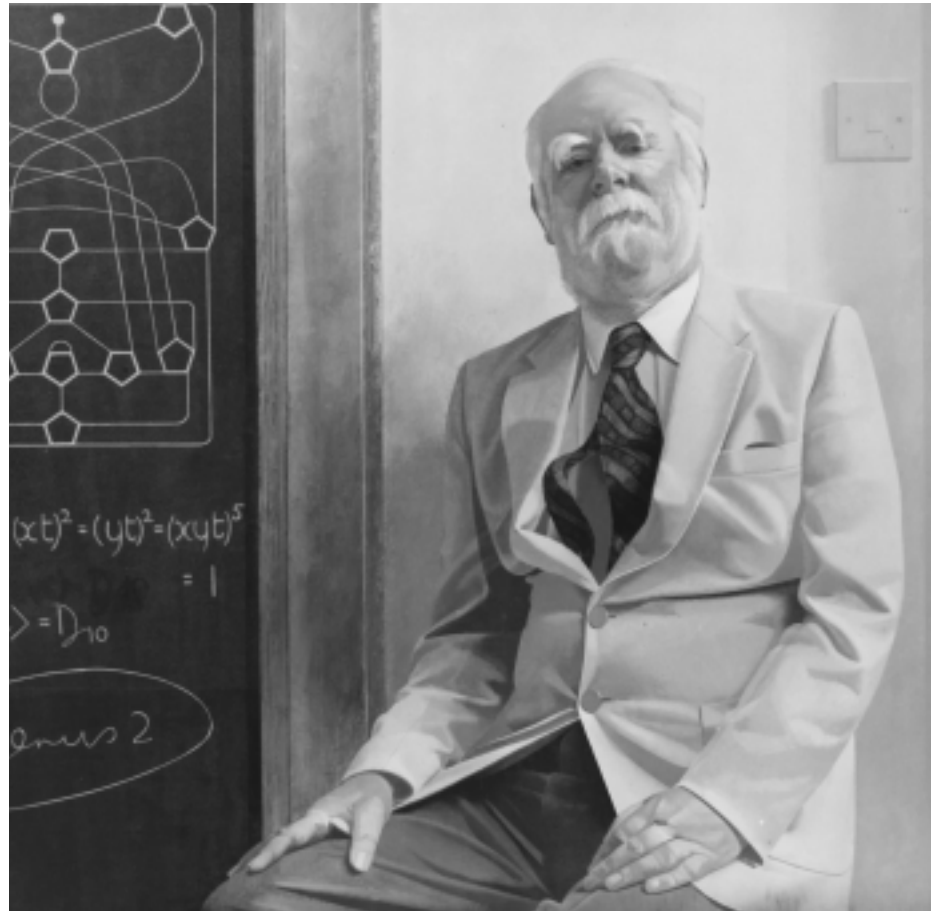
**FEBRUARY 2006**

- 10 LMS Meeting, Mary Cartwright Lecture, London
- 17 Edinburgh Mathematical Society Meeting, Edinburgh University (341)

**MARCH 2006**

- 17 Edinburgh Mathematical Society Meeting, Dundee University (341)
- 27-7 Apr Non-Equilibrium Dynamics of Interacting Particle Systems School, INI, Cambridge (341)

**GRAHAM HIGMAN**  
**DE MORGAN MEDALLIST**  
**1974**



Extract from the citation: 'Graham Higman is an algebraist of truly outstanding quality. He is primarily but not exclusively a group theorist and he has made fundamental and influential contributions both to infinite group theory, including its algorithmic aspects, and to the theory of finite groups. His finest paper on infinite groups showed that a finitely generated

group can be embedded in a finitely presented group if and only if it has a recursively enumerable set of defining relations. In finite group theory, the outstanding paper on the  $p$ -length of  $p$ -soluble groups, written with P. Hall, played an essential part in the great breakthrough of 1963 when Feit and Thompson proved that all groups of odd order are soluble.'