

# THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 303

April 2002

## FORTHCOMING SOCIETY MEETINGS

*Wednesday 5 June 2002 – Liverpool*

Northern Regional Meeting

Algebraic Geometry, Knot Theory and Related Areas

*Friday 21 June 2002 – London*

Professor A.R. Its (Hardy Lecture), J Marklof

*Wednesday 23 October 2002 – London*

The Four-colour Problem

Joint meeting with the British Society  
for the History of Mathematics

*Friday 22 November 2002 – London*

Annual General Meeting

J.T. Stuart (Presidential Address), J.D. Gibbon

## HUMBLE BOY

I'd read that *Humble Boy*, a new play by Charlotte Jones that had transferred from the National Theatre to the Gielgud, was about an astrophysicist. So I went to the theatre expecting something along the lines of Tom Stoppard's *Hapgood* or *Arcadia*, in which mathematics and theoretical physics are part of the story.

For a while, that was what I still thought I was going to see. In the programme, I found passages about string theory taken from Brian Greene's *The Elegant Universe*. The play itself begins with a scene in which Felix Humble, a research fellow in astrophysics played by Simon Russell Beale, refuses to deal with important matters until he has found a set of suitable names for collections of things (like beekeepers), and I expected more to be made of this compulsive streak.

After that, however, *Humble Boy*

became an entertaining but not very special West End play about relationships within and between families. String theory does get a mention, but it seems grafted on, not an integral part of the play at all. The same is true of another character's long account of his father's experiences in the RAF, incidentally, so it's not just that I was expecting too much of the mathematics.

For me, the best thing about the play was Simon Russell Beale's performance. He brought Felix Humble to life, even if I didn't find the character convincing as a mathematician. Though it was disconcerting to realise how much his choice of ill-fitting and inappropriate clothes reminded me of one or two real mathematicians I have met. Felicity Kendall was eminently watchable, as she always is.

*Humble Boy* is not a very deep play and

it is not about mathematics. In a way, that's the most encouraging thing about it. It's nice to know that mathematicians and physicists are now included in the range of characters that authors feel they can draw on, and that string theory is considered something that can be mentioned to an ordinary audience without turning the play into a lecture. That must be better than being confined to a sort of intellectual ghetto, even one that contains such excellent plays as *Breaking the Code* and *Copenhagen*. Of course, if the mathematician was going to be a stereotype we'd all have preferred a more flattering one, but I doubt that any profession is satisfied with the way it's portrayed on the stage. We mustn't take ourselves too seriously.

Peter Saunders  
King's College, London

## 2001 FERMAT PRIZE AWARDED

The 2001 Fermat Prize in Mathematics has been awarded to Richard Taylor of Harvard University and Wendelin Werner of the Université de Paris-Sud. Taylor was honoured for his many contributions to the study of connections between Galois representations and automorphic forms. Werner was honoured for his work on intersection exponents of Brownian motion and their impact on theoretical physics.

The Fermat Prize is presented every two years and carries a monetary award of FF 100,000 (approximately \$15,500). Previous recipients of the Fermat Prize are: Abbas Bahri and Kenneth A. Ribet (1989), Jean-Louis Colliot-Thélène (1991), Jean-Michel Coron (1993), Andrew J. Wiles (1995), Michel Talagrand (1997) and F. Bethuel and F. Helein (1999).

## MR EVAN INNES

Mr Evan Innes, who was elected a member of the London Mathematical Society on 17 January 1975, died on 9 December 2001, aged 80.

## PROFESSOR CEDRIC A.B. SMITH

Professor Cedric A.B. Smith, who was elected a member of the London Mathematical Society on 19 June 1947, died on 11 January 2002, aged 84.

## VISIT OF PROFESSOR Y. SAMOILENKO

Professor Yuri Samoilenko (Institute of Mathematics, Kiev, Ukraine) will visit the UK from 14 April to 12 May. He will be based at the Nottingham Trent University. The visit is supported by an LMS Scheme 5 grant. For further information contact Dr Alexei Daletskii, Department of Computing and Mathematics, Nottingham Trent University, Burton Street, Nottingham NG1 4BU (alexei.daletskii@ntu.ac.uk).

## VISIT OF PROFESSOR G.O. MICHLER

Professor G.O. Michler (Institute for Experimental Mathematics, University of Essen, Germany) will be visiting the UK and giving three lectures in late April and early May:

- 29 April, 2.30 pm, University of East Anglia, Norwich: 'How to compute the character table of a finite permutation group'
- 30 April, 5 pm, University of Oxford: 'Modular representation theory and the revision of sporadic group theory'
- 1 May, 2 pm, University of Canterbury: 'How to build a prototype for a distributed digital mathematics archive library'

For further information contact Professor Peter Fleischmann, Director of Pure Mathematics, University of Kent, Canterbury CT2 7NF (tel: 01227 823 654, fax: 01227 827 932, e-mail: p.fleischmann@ukc.ac.uk). The visit is supported by an LMS grant.



# LONDON MATHEMATICAL SOCIETY NORTHERN REGIONAL MEETING AND WORKSHOP

## ALGEBRAIC GEOMETRY, KNOT THEORY AND RELATED TOPICS

The University of Liverpool  
Meeting Wednesday 5 June - Workshop 6-8 June

Professor Lou Kauffman (University of Illinois at Chicago)  
*Does the Jones polynomial detect knots?*

Professor János Kollár (Princeton University)  
*What are the simplest algebraic varieties?*

The meeting will take place on Wednesday afternoon starting at 3 pm and in the evening there will be a dinner for speakers and visitors.

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

From Thursday 6 to Saturday 8 June there will be an LMS sponsored workshop on Knot Theory and Algebraic Geometry. This will include two 3-lecture courses suitable for postgraduate students:

- Dr Stavros Garoufalidis (Warwick) *The geometry of the Jones polynomial*
- Professor Andrei Tyurin (Steklov Institute, Moscow) *Graphs, knots and vector bundles on algebraic curves*

Other invited speakers will be announced later and there will be an opportunity for contributed talks. Some LMS support is available for workshop speakers and participants, especially postgraduate students and residents of the former Soviet Union.

For further details contact Professor Peter Giblin, (tel: 0151 794 4053/4043, e-mail: [pjgiblin@liv.ac.uk](mailto:pjgiblin@liv.ac.uk)) or Professor Hugh Morton (tel: 0151 794 4070, e-mail: [morton@liv.ac.uk](mailto:morton@liv.ac.uk)) or see the webpage (<http://www.liv.ac.uk/~pjgiblin/LMSJune02/>).

## HARDY FELLOW TIMETABLE 2002

Professor Alexander Its, of Indiana University-Purdue University, is visiting the UK as Hardy Fellow. During his stay, he is visiting various institutions, as in the table below. There has been more demand for visits than can be accommodated: it is hoped that Members of the Society will find the opportunity to hear Professor Its when he is speaking at a neighbouring University. Further details about each talk can be obtained from the local host.

Date	Venue	Host	Lecture
Friday 19 April	Brunel	Professor Y.V. Fyodorov (mastyvf@brunel.ac.uk)	The Riemann-Hilbert method for Random Matrices
Wednesday 24 April	Cambridge	Professor A.S. Fokas (tf227@damtp.cam.ac.uk)	Asymptotics of orthogonal polynomials, the Riemann-Hilbert Problem and universality in matrix models
Tuesday 30 April	Bristol	Dr J. Marklof (j.marklof@bristol.ac.uk)	Asymptotics of orthogonal polynomials, the Riemann-Hilbert Problem and universality in matrix models
Wednesday 15 May	Kent at Canterbury	Professor P.A. Clarkson (p.a.clarkson@ukc.ac.uk)	Quasi-linear Stokes Phenomenon for the Second Painlevé Transcendent
Tuesday 21 May	York	Dr G.W. Delius (gwd2@york.ac.uk)	The non-linear Schrödinger equation on the half line and a finite interval
Wednesday 22 May	Durham	Dr W. Klingenberg (wilhelm.klingenberg@durham.ac.uk)	The Riemann-Hilbert Method
Friday 24 May	Edinburgh Mathematical Society	Dr P. Heywood (philip@maths.ed.ac.uk)	Asymptotics of orthogonal polynomials, the Riemann-Hilbert Problem and universality in matrix models
Friday 21 June	London	London Mathematical Society (lms@lms.ac.uk)	Integrable Systems and Integrability
Friday 28 June	Leeds	Dr V.B. Kuznetsov (vadim@amsta.leeds.ac.uk)	The Riemann-Hilbert approach in Random Matrix Theory



## FRÖHLICHER NACHKLANG

Spontaneous applause greeted the proposal by the organisers, Jürgen Ritter and myself, that the February Oberwolfach meeting on 'Orders in Arithmetic and Geometry' should be dedicated to the memory of Ali Fröhlich. Oberwolfach was always very special to Ali. He had attended numerous meetings there over the past forty years, and he was extremely fond of both the institute and the locality. It was therefore both very appropriate and also our great pleasure that his wife Ruth and daughter Sorrel were able to come and join us for the meeting.

Ali, who sadly passed away in November last year, was not only a singularly original and creative mathematician, famous for his spectacular breakthrough in the Galois structure of rings of integers, but he was also remarkable research leader who built up a major international research community in the theory of Galois modules. The great majority of the participants of the meeting had benefited substantially from his advice and encouragement. It was immensely impressive to see how this subject area, which he cared for so much, has developed and diversified in recent years - so that it now embraces *inter alia* aspects of Galois actions in arithmetic geometry, Iwasawa theory and Stark's conjectures. The meeting therefore proved to be a wonderful tribute to both Ali's work and his scientific leadership.

On the Wednesday evening Leon McCulloh led an *Ali Abend* in the Music Room of the Institute, where, in an informal manner, we recalled various stories and incidents from his life. This provided us all with an opportunity to share our memories of Ali. Many recalled his encouragement and his generosity with ideas, and his remarkable gift of inspiring a sense of self-belief in young researchers. In addition to being a very distinguished mathematician, he was also a remarkable person who had led a remarkable life. A number of people mentioned his integrity, and others recounted stories from his war years in Palestine and his early years in the

UK. A particularly striking theme was his deep love of German life and culture - this despite his family having suffered so much at the hands of Hitler's Third Reich. His love of things German manifested itself in many ways: from his contacts, exchanges and support for German mathematics to his appreciation for German coffee houses and especially German Kuchen. His favourite coffee house was in Schiltach, where his limitless capacity for eating Kuchen and his mop of wild, white hair are still fondly remembered by one of the employees. Ruth and Sorrel delighted us with a number of tales from the home front, where the endearing eccentricities of the "absent minded professor" kept his family constantly amused. On one occasion, for instance, he went to work in his slippers, returning home in the rain with soaking wet feet. Ali enjoyed a joke as much as anybody; he never took himself too seriously, and indeed, detested any kind of pomposity or self-importance in others. Altogether this was a moving and thoroughly memorable evening, and it was especially touching to note how a number of participants from the parallel meeting on 'Arithmetic of Fields' chose to attend.

When the meeting closed on Friday evening, many of those present then packed their cases to make their way to Cambridge, for the Celebration of Ali's life which took place on the following Sunday in Robinson College.

Martin Taylor

## INTERNATIONAL MATHEMATICS COMPETITION FOR UNIVERSITY STUDENTS

The 9th international mathematics competition for university students is being co-organised by University College London and Warsaw University, Warsaw, Poland from 19-25 July 2002. It will take place in Warsaw. Information can be found on the web (<http://www.imc-math.org/>), or from Professor J.E. Jayne, University College London ([j.jayne@imc-math.org](mailto:j.jayne@imc-math.org)).



## FIRST ITALIAN-AMERICAN MEETING

The first Italian-American meeting (Unione Matematica Italiana - American Mathematical Society) will take place in Pisa (Palazzo dei Congressi and Dipartimento di Matematica dell'Università degli Studi di Pisa) on 12-16 June 2002. The programme consists of eight general conferences and several special sessions.

For further information look on the web (<http://www.dm.unip.it/meet2002/>) for the full programme (which will be updated periodically), the list of speakers and special sessions, and all the information for registration and hotel reservation.

## NONSTANDARD METHODS AND APPLICATIONS IN MATHEMATICS

An International Congress NS2002 will be held on 10-16 June 2002 in Pisa, Italy on 'Nonstandard methods and applications in Mathematics'. The sponsors for the event are INDAM-GNSAGA, Domus Galilaeana. The organizers for the event are A. Berarducci (Pisa, Italy), N.J. Cutland (Hull, UK), M. Di Nasso (Pisa, Italy) and D. Ross (Hawaii, USA).

The congress will consist of two segments. The first one is a Satellite Conference, 10-12 June. The second one is a Special Session of the joint UMI-AMS meeting, 12-16 June, described above. A sub-session 'Reuniting the Antipodes: Nonstandard and Constructive Views of the Continuum, II' is scheduled as part of the NS2002 congress.

The invited speakers include S. Albeverio, J. Bell, V. Benci, N. Cutland, K. Hrbackek, R. Jin, H.J. Keisler, P. Loeb, W.A.J. Luxemburg, A. MacIntyre, T. Nakamura, H. Osswald, D. Ross, M. Wolff. To contribute a talk, submit the title and abstract via e-mail ([pisa2002@infinitesimals.org](mailto:pisa2002@infinitesimals.org)). For further information visit the NS2002 website (<http://www.docenti.ing.unipi.it/~o18933/Pisa2002>).

## SIMAI 2002

The 6th Congress of the Italian Society for Applied and Industrial Mathematics (SIMAI) will be held on 27-31 May 2002 at the Congress Center of Grand Hotel Chia Laguba, Chia, Sardinia. The Congress will consist of minisymposia, focus sessions, oral and poster sessions, round tables and invited lectures. Topics will be concerned with applied mathematics and the applications of mathematics in industry, technology, environment and society. Further information is available on the web (<http://www.iac.rm.cnr.it/simai>).

## SECANTS

SECANTS (South of England Computational and Algorithmic Number Theory Seminars) will hold its sixteenth meeting in Bristol on Saturday 18 May 2002. The speakers will be Kim Nguyen (Philips Semiconductors, Hamburg), Tom Fisher (Cambridge) and Nelson Stephens (Goldsmiths).

For more details of the programme, as well as general information about SECANTS, and how to be put on the e-mail mailing list, visit the website (<http://www.maths.nott.ac.uk/personal/jec/secants/secants17.html>). SECANTS is funded by an LMS Scheme 3 grant.

## VISIT OF PROFESSOR Q. ZHANG

Professor Qi Zhang (University of California Riverside) will visit the University of Bristol from 22-26 April. During his stay in the UK Professor Zhang will give talks at Bristol (23 April 4 pm, SM2), Cardiff (24 April 3 pm, Room M2.06, Mathematics Institute) and Imperial College (25 April 3 pm, Huxley Building, Room 642). The title of the talk is 'The boundary behaviour of Dirichlet heat kernels and applications'. For further information contact Michiel van den Berg ([M.vandenBerg@bristol.ac.uk](mailto:M.vandenBerg@bristol.ac.uk)) and Vitali Liskevich ([V.Liskevich@bristol.ac.uk](mailto:V.Liskevich@bristol.ac.uk)).



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## ASSESSMENT WITH A PURPOSE

The LTSN Maths, Stats & OR Network presents a one-day workshop (Wednesday 15 May, Sheffield Hallam University) on the purposes of assessment in Mathematics, Statistics and Operational Research. Speakers will describe methods of assessment based on personal experiences, which include secondary education, the school/university interface, group and self-assessment and technology supported testing. There should be something for everyone particularly in the two interactive sessions, when participants will work on matching learning outcomes to appropriate assessment methods using their own questions, including those that could be tested automatically. The workshop will conclude in reflective mode by summarising dele-

gates' reactions to the day's programme.

The speakers will be Cliff Beevers (Heriot-Watt), Peter Holmes (Nottingham Trent), Neil Challis (Sheffield Hallam), Ros Sutherland (Bristol) and Michael McCabe (Portsmouth).

To register for this workshop please contact Jenny Nolan, LTSN Maths, Stats & OR Network, The University of Birmingham, Edgbaston, Birmingham B15 2TT (tel: 0121 414 7095, e-mail: [info@mathstore.ac.uk](mailto:info@mathstore.ac.uk)) or use the online form (<http://ltsn.mathstore.ac.uk/workshops/purpose.htm>). Bookings should be confirmed by post with payment in advance - the cost is £35 including a buffet lunch. Cheques should be made out to the University of Birmingham.

## LONDON MATHEMATICAL SOCIETY INVITED LECTURES SERIES

The Society's Invited Lectures series consists of meetings at which a single speaker gives a course of about ten expository lectures, examining some subject in depth, over a five day period (Monday to Friday) during a University vacation. The meetings are residential and open to all interested. It is intended that the texts of the lectures given in the series shall be published. In addition to full expenses, the lecturer is offered a fee of £1250 for giving the course and a further fee of £1500 on delivery of the text in a form suitable for publication. Recent lecturers in the series have been P.F. Baum (1995), F.J. Almgren (1996), J. Alperin (1997), D. Zagier (1998), A. Mielke (1999), B. Dubrovin (2000), T. Goodwillie (2001). The 2002 lectures will be given at the University of Leeds by P. van Moerbeke.

For the 2003 meeting, proposals are now invited from any member who, in addition to suggesting a topic and lecturer, would be prepared to organize the meeting at the member's own institution or a suitable conference centre. Enquiries about this series should be directed to the Executive Secretary, Dr D.J.H. Garling, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (e-mail: [garling@lms.ac.uk](mailto:garling@lms.ac.uk), tel: 020 7637 3686, fax: 020 7323 3655). Programme Committee hopes to make a decision on **Friday 21 June 2002**.



## BOOK REVIEW

**Counting On Frameworks: Mathematics to Aid the Design of Rigid Structures** by J.E. Graver (Dolciani Mathematical Expositions 25) The Mathematical Association, 2001, 180 pp, £23.95, ISBN 0-88385-331-0.

Scaffolding is used extensively in the building industry. Its design and erection raises a number of interesting questions, both mathematical and engineering. For example, are the rods and planks strong enough to bear the weight of the builders and their equipment and is the scaffolding braced sufficiently to make it rigid? It is the latter question which motivates the material in the book. In real life, of course, nothing is completely rigid, so the frameworks considered by Graver are idealised structures composed of rigid rods joined at their ends by flexible joints. A tetrahedron constructed in this way is clearly rigid, but a cube is not. The dimension of the underlying space is relevant, however: a rectangle with one diagonal is rigid if it lies in a 2-dimensional space, but in three dimensions it could be folded along the diagonal.

The main problems considered in the book are (a) to determine whether a given design will yield a rigid framework and (b) if the framework is non-rigid, what is the minimal number of additional rods needed to brace it and where should they be placed? Current health and safety legislation in the UK places much emphasis on risk assessment and another topic mentioned briefly by the author is relevant here: designing a framework which remains rigid if any one of its rods fails.

The author develops three mathematical models for considering frameworks. The first of these is a degrees of freedom model. This is easy to apply to small structures, but it lacks a rigorous basis and for some special frameworks, it leads to wrong conclusions.

The distance between a pair of joints connected by a rigid rod in a framework remains unchanged no matter how the framework is moved. If the whole framework is non-rigid, however, then the distance between a pair of joints not directly connected by a rod may alter. The

author's second model is a standard one in the subject. For each rod, the distance between the coordinates of its endpoints must equal the length of the rod. Each rod, therefore, yields a quadratic equation in the coordinates. Solving a system of quadratic equations is not an easy matter and, when it can be done, the solution set may not be unique. To decide whether the framework itself is rigid, it is necessary to consider the distance between each pair of joints not connected by a rod. If two different solutions yield different distances between one such pair, then the framework is non-rigid.

For his third model, the author introduces a concept of infinitesimal rigidity. This form of rigidity implies ordinary rigidity (but the full proof is beyond the scope of the book). The converse is not true, however, and there is a small number of exceptional frameworks which are rigid but not infinitesimally rigid. This new form of rigidity leads to systems of linear equations which can, of course, be solved easily, so this model leads to correct predictions for 'generic' frameworks. But characterising the exceptional frameworks is an unsolved problem.

If the rigidity of the rods in a framework is ignored, and then the resulting object can be regarded as a graph, called the structure graph of the framework. Some elementary graph theory is, therefore, developed in the book.

The final chapter of the book is entitled 'History and Applications'. One short section deals with linkages, a topic rather unrelated to the main theme of the book. A linkage is a planar framework in which some of the joints are pinned so that they cannot be moved from their initial positions. Other joints can be moved, but the linkage will constrain them to move along certain paths or to lie within certain areas. An important problem is to construct a linkage in which one of the joints

moves along a straight line. The solution involves a nice application of geometrical inversion and deserves to be better known. The author bases his account of linkages on A.B. Kempe's classic booklet 'How to Draw a Straight Line' first published in 1877.

Other topics considered in the concluding chapter include Geodesic Domes and Tensegrity. In a tensegrity framework, some of the rigid bracings are replaced by wires or cables which must, of course, be under tension in order to serve any purpose in the rigidity of the framework.

Parts of the book can be appreciated with little mathematical knowledge, but for a full understanding of the entire book some knowledge of calculus and linear algebra is required, together with what

the author terms 'comfort with abstract mathematical concepts and with simple proofs'.

The book is generally well written, but in places the style is rather informal and occasionally the informality leads to slight vagueness. For example, in the instructions on p 149 for constructing a particular geodesic dome, the author includes 'Remove the edges joining two 10-valent vertices'. This is a minor quibble, however, and overall I enjoyed reading the book. It sets out to develop mathematical models for rigidity and it is a useful addition to the literature in that area.

Keith Lloyd  
University of Southampton

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The departmental contact is Professor S. Alpern, who can be contacted by e-mail ([s.alpern@lse.ac.uk](mailto:s.alpern@lse.ac.uk)). Further information about the Department can be found at <http://www.maths.lse.ac.uk>.

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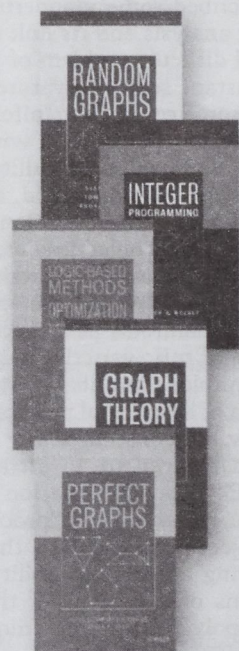
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## MARY CARTWRIGHT LECTURE

This year's Mary Cartwright Lecture was held at SOAS on 15 February 2002. It was delivered by Frances Kirwan of Oxford, and preceded by a lecture by Simon Donaldson of Imperial College.

Professor Donaldson's lecture, on "Convex analysis and toric manifolds", described some wonderfully simple convex analysis and its link to the very deep and difficult problem of the existence of constant scalar curvature Kähler metrics on some complex manifolds.

He set the problem within a very general context of "stability" for complex varieties, which should, conjecturally, be equivalent to the existence of such metrics. This conjecture would have great implications for algebraic geometry and would solve the Einstein equations on such manifolds as a special case. For the case of toric varieties (a class of complex manifolds describable in terms of the data of an integral polytope) he explained how the constant scalar curvature equation reduced to an attractive 4th order PDE ("Abreu's equation") on the polygon. He sketched a proof of half of the conjecture in this case: that polygons satisfying a certain stability condition (in terms of partitions of the polygon into subpolygons) admit unique solutions of the PDE.

Professor Kirwan delivered the Mary Cartwright lecture itself, on the subject of "Moduli spaces of Riemann surfaces and holomorphic bundles". The lecture was a survey of some of the fascinating and difficult problems and results concerning moduli spaces associated to the simplest objects of algebraic geometry: algebraic curves. The lecture reflected the wonderful mix of classical geometry and modern techniques that permeate the area, showing for instance how a classical problem of counting numbers of curves through a fixed set of points in the projective plane could now be solved using the techniques of Gromov-Witten invariants. In turn the key ideas behind this very modern method, originating in

physics and the links between string theory and algebraic curves, were shown to be essentially simple geometry.

The lecture gave an idea of some of the great progress made recently in these areas, some of the problems still remaining, and mysterious and intriguing connections (to zeta functions, for instance) that are still not fully understood.

Both speakers managed to present difficult geometry in elementary, understandable terms, attracting a general audience so overflowing that we had to move to a bigger room between the two lectures.

Richard Thomas  
Imperial College

## NONCOMMUTATIVE LOCALIZATION

A meeting on 'Noncommutative localization in algebra and topology' will be held from 29-30 April at ICMS in Edinburgh. The speakers will be P.M. Cohn, A. Neeman, A. Ranicki, H. Reich, A. Schofield and D. Sheiham. The meeting is supported by the LMS and by the EU TMR Network ERB FMRX CT-97-0107. For further information consult the web-pages (<http://www.ma.hw.ac.uk/icms/meetings/2002/nlat>) or contact Andrew Ranicki ([aar@maths.ed.ac.uk](mailto:aar@maths.ed.ac.uk)).

## SIXTIETH BIRTHDAY OF PROFESSOR P. MCMULLEN

A meeting on 17-18 May 2002 will be held at University College London to mark Professor Peter McMullen's sixtieth birthday. The speakers are:

- Louis Billera (Cornell)
- Gil Kalai (Jerusalem)
- Jürgen Richter-Gerbert (Munich)
- Richard Stanley (MIT)
- Peter Gritzmann (Munich)
- Carl Lee (Kentucky)
- Egon Sculte (Northeastern)
- Gunter Ziegler (Berlin)

For further information contact Professor David Larman ([d.larman@ucl.ac.uk](mailto:d.larman@ucl.ac.uk)). The meeting is supported by an LMS conference grant.





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## RECORDS OF PROCEEDINGS AT MEETINGS

### ORDINARY MEETING

held on *Friday 15 February 2002* at the School of Oriental and African Studies, London. About 69 members and visitors were present for all or part of the meeting.

The meeting began at 3:30 pm, with Professor J.T. STUART, FRS, President, in the Chair. Ten people were elected to Ordinary Membership: L.V. Bogachev, J.C. Bradfield, W. Brueggemann, A. Eberle, L.J. Halbeisen, D.J. Henwood, N. Leonenko, M. Pourmahdian, O. Törnkvist, J.M. Walthoe; four people were elected to Associate Membership: D.J. Crispin, E.Y-T. Ho, M.K. Oakes, S. Perez Mansilla; and four people were elected to Reciprocity Membership: E. Cevik (Amer. Math. Soc.), S.A. Illman (Finnish Math. Soc.), R. Jeltsch (Amer. Math. Soc. and Deutsche Math.-Verein.), W.A. Rodrigues, Jr. (Amer. Math. Soc.).

Richard Thomas introduced a lecture given by S.K. Donaldson on 'Convex Analysis and Toric Manifolds'.

After tea, seven people signed the book and were admitted to the Society.

Richard Thomas introduced the Mary Cartwright Lecture given by F.C. Kirwan on 'Moduli Spaces of Riemann Surfaces and Holomorphic Bundles'.

After the meeting, a reception was held at De Morgan House, followed by a dinner at Poon's Restaurant.

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## OPERATIONAL RESEARCH SOCIETY (UK) LOCAL SEARCH STUDY GROUP

Two Day Workshop on Local Search  
Call for Registration  
16-17 April 2002, City University, London

### **EPSRC/LMS MathFIT funding is available for PhD students**

The aim of this workshop is to bring researchers and practitioners together in an informal and mutually supportive environment to discuss the current, and future, state of the art in local search optimisation as well as how these developments relate to commercial practice.

### **Programme and Scope**

The event includes plenary sessions, and provides 38 talks from international researchers covering both local search techniques and applications, as well as a conference dinner. We are pleased to announce that we have two plenary speakers who will be of interest to the local search community:

- Wim Nuijten (ILOG SA) *Comparing and Combining Local Search and Constraint Programming*
- Thomas Stuetzle (Technical University of Darmstadt) *Ant Colony Optimisation: Algorithms, Applications, and Advances*

A special issue of the Journal of the Operational Research Society will be produced following the workshop.

### **Registration and Enquiries**

Further details on online registration may be obtained on the web (<http://www.orsoc.org.uk/>). Financial support is available via EPSRC/LMS MathFIT for PhD students. Enquiries should be directed to Dr Celia Glass, City University ([c.a.glass@city.ac.uk](mailto:c.a.glass@city.ac.uk)). General queries should be made to the Conference Chair ([andrewt@soi.city.ac.uk](mailto:andrewt@soi.city.ac.uk)), or to Chris Barrett of the Operational Research Society, Seymour House, 12 Edward Street, Birmingham B1 2RX (tel: + 44 (0) 121 233 9300, fax: + 44 (0) 121 233 0321). More details about the venue can be found on the web (<http://www.city.ac.uk/>).



## LMS PROGRAMME AND CONFERENCE FUND

Members are reminded that the Society's Programme and Conference Fund is used to provide conference grants (Scheme 1), grants to visitors to the UK (Scheme 2), grants to support joint research groups (Scheme 3), collaborative small grants (Scheme 4), international short visits (Scheme 5) and connectivity grants (Scheme 6). The fund is administered by the Society's Programme Committee. Information about the various schemes was given in the December 2001 *Newsletter* (No. 299, pp 19-23), and is also on the Society's web ([http://www.lms.ac.uk/activities/prog\\_com/index.html](http://www.lms.ac.uk/activities/prog_com/index.html)). Queries regarding applications can be addressed to Helen Woodward (tel: 020 7291 9979, e-mail: [woodward@lms.ac.uk](mailto:woodward@lms.ac.uk)) who will be pleased to discuss proposals informally with potential applicants and give advice on the submission of an application.

There is a deadline of **31 May 2002** for conference grant applications, and for Scheme 4 grant applications; these applications will be considered in June. There are no deadlines for Schemes 2, 5 and 6, but these should be made two to three months before the proposed visits or collaboration, to allow for consideration by Programme Committee and subsequent publicity in the *Newsletter*. Please bear in mind, however, that applications for Scheme 2, 5 and 6, which are received after 31 May 2002, will not be considered until September. Applicants for Scheme 3 grants are encouraged to submit applications in good time for consideration in September.

Programme Committee has awarded grants to support the following conferences and meetings. If you wish to attend, or would like more information, please contact the organiser.

Date/Venue	Title	Organizer/e-mail
5-6 April 2002 Oxford	2D Integrable Models and Conformal Field Theory - 6th Informal UK Meeting	J.L. Cardy <a href="mailto:cardy@thphys.ox.ac.uk">cardy@thphys.ox.ac.uk</a>
7-12 April 2002 Warwick	BMC/BAMC	C. Rourke <a href="mailto:cpr@maths.warwick.ac.uk">cpr@maths.warwick.ac.uk</a>
17-19 April 2002 Birmingham	4th Postgraduate Group Theory Conference, 2002	S. Hendren, P. Hardy <a href="mailto:PGGTC2002@bham.ac.uk">PGGTC2002@bham.ac.uk</a>
25-26 April 2002 Leicester	Invariant and Symmetry Preserving Algorithms for N-Body Simulation	B. Leimkuhler <a href="mailto:bl12@mcs.le.ac.uk">bl12@mcs.le.ac.uk</a>
29-30 April 2002 ICMS, Edinburgh	Noncommutative Localization in Algebra and Topology	A. Ranicki <a href="mailto:aar@maths.ed.ac.uk">aar@maths.ed.ac.uk</a>
13 May 2002 Manchester	Foams, Fluids and Liquid Crystals: The Complexity of Fluid Motion	A. Juel <a href="mailto:anne.juel@ma.man.ac.uk">anne.juel@ma.man.ac.uk</a>
15 May 2002 Reading	Reading One Day Combinatorics Colloquium	A.J.W. Hilton <a href="mailto:a.j.w.hilton@reading.ac.uk">a.j.w.hilton@reading.ac.uk</a>
17-18 May 2002 UCL	60th Birthday of Professor P. McMullen	D.G. Larman <a href="mailto:d.larman@math.ucl.ac.uk">d.larman@math.ucl.ac.uk</a>
20-22 May 2002 Gregynog Hall, Powys	Intercollegiate Colloquium in Mathematics 2002	J. Kellendonk <a href="mailto:kellendonkj@cf.ac.uk">kellendonkj@cf.ac.uk</a>
10-11 June 2002 Queen Mary	BRITGRAVII Second British Gravity Meeting	H. van Elst <a href="mailto:h.van.elst@qmul.ac.uk">h.van.elst@qmul.ac.uk</a> , R. Tavakol <a href="mailto:r.k.tavakol@qmul.ac.uk">r.k.tavakol@qmul.ac.uk</a>

24-28 June 2002	Topology, Geometry and Quantum	U.L.Tillman
Oxford	Field Theory	tillmann@maths.ox.ac.uk
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18-22 August 2002	International Workshop on	R. Horan
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4-8 September 2002	Discrete Groups and Analysis	J. Brodzki
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12-14	British Logic Colloquium	E. Ritter
September 2002		e.ritter@cs.bham.ac.uk
Birmingham		
16-19	Workshop Domains VI	A. Jung
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Birmingham		
16 November 2002	Belfast Functional Analysis Day	M. Mathieu
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Further particulars are available from the Tutorial Office, Clare College, Cambridge CB2 1TL (tel: 01223 333246, e-mail: aw235@cam.ac.uk) and are also posted on the College's website (<http://www.clare.cam.ac.uk>). Applications, including a *curriculum vitae* and the names of 3 referees who have been asked to write direct to the Master's Secretary, should reach the Master's Secretary by closing date of **15 April 2002**.



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The Chairman of the Adjudicators for the Adams Prize invites applications. The Prize will be awarded this year for research achievement in the field of Financial Mathematics.

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Applications (seven copies), comprising a CV, a list of publications, the work or works (published or unpublished) to be considered, and a brief summary of the most significant new results of these works should be sent to:

**The Secretary of the Adams Prize Adjudicators,  
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Wilberforce Road, Cambridge, CB3 0WA**

*(enquiries may be emailed to: [faculty@maths.cam.ac.uk](mailto:faculty@maths.cam.ac.uk)).*

**The deadline for receipt of applications is 31 October 2002.**

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## LMS BOOK SERIES ANNUAL REPORTS FOR 2001

### Lecture Note Series

The LMS Lecture Note Series, published jointly by the Society and Cambridge University Press, has now produced 294 titles. Most volumes are short monographs giving an authoritative account of the present state of knowledge on a topic of general interest. Some items are associated with specific LMS initiatives. The contents of the series cover a variety of material cutting a broad swathe of mathematics, based on lecture courses, instructional conferences or books whose subject matter and presentation make them appropriate for both graduate students and workers in adjacent disciplines. Proposals resulting from conferences should also have this general appeal, in practice usually manifested by a number of extended survey lectures, perhaps with some shorter research papers organized by the editor to illustrate the techniques.

Books in the series published in the year 2001 are:

- 283 Fu/Ogden - Nonlinear Elasticity
- 284 Devore/Iserles/Suli - Foundations of Computational Mathematics
- 285 Niederreiter/Xing - Rational Points on Curves over Finite Fields
- 286 Lounesto - Clifford Algebras and Spinors 2ed
- 287 Bujalance/Costa/Martinez - Topics on Riemann Surfaces and Fuchsian Groups
- 288 Hirschfeld - Surveys in Combinatorics 2001
- 289 Saloff-Coste - Aspects of Sobolev-Type Inequalities

Those currently in production are:

- 292 Majid - A Quantum Groups Primer
- 293 Da Prato/Zabczyk - Second Order PDEs in Hilbert Spaces
- 294 Pisier - Introduction to the Theory of Operator Spaces

In line with the current policy of the LMS, the series wishes to attract proposals which have a significant interface with both pure and applied mathematics. The present team of Editorial Advisors consists of Stephen Donkin (QMW) in Algebra, Ivan Fesenko (Nottingham) in Number Theory, John Roe (Penn State) in Topology and Analysis and Endre Suli (Oxford) in Numerical Analysis.

Manuscripts or proposals for consideration should be sent either to one of the editors or to Jonathan Walthoe at Cambridge University Press ([jwalthoe@cambridge.org](mailto:jwalthoe@cambridge.org)), any of whom will also be happy to answer enquiries about the series.

Nigel Hitchin, Oxford

LMS Lecture Note Series Editor  
([hitchin@maths.ox.ac.uk](mailto:hitchin@maths.ox.ac.uk))

### Student Texts Series

Established in 1983, the LMS Student Texts Series complements the LMS Lecture Notes Series by publishing textbooks of an expository nature aimed at advanced undergraduates and beginning graduate students. In 2001, it reached the 50 volume milestone. The series aims to offer introductions to areas in which there is an absence of well-established and standardised exposition, providing students with access to new and exciting ideas as they emerge. Ideally, a Student Text should be accessible to a first year research student reading alone. They may also provide a straightforward and enjoyable introduction to a new subject for established researchers in other parts of mathematics. Texts are often based on graduate courses given by the authors. We are aiming to expand the series to include applied mathematics, and particularly encour-

age proposals in this direction. Also considered are translations of books at the right level and lecture notes from Instructional Conferences. Such notes need to be well coordinated and will probably have a limited number of authors. Volumes appear in both hardback and paperback and should be between 150 and 400 pages in length.

Two volumes were published last year: A Brief Guide to Algebraic Number Theory by P Swinnerton-Dyer, and the second edition of R Sharp, Steps in Commutative Algebra. Coming soon are O Haggstrom, Finite Markov Chains and Algorithmic Applications, and G Jameson, The Prime Number Theorem. The recent publication by Rordam, Larsen and Laustsen (Introduction to K-theory) is doing well.

Manuscripts and proposals are always welcome. They should be sent either to one of the editorial advisers: John Gibbon (Imperial), Martin Liebeck (Imperial), Peter Olver (Minnesota), Elmer Rees (Edinburgh) or myself (cms@maths.warwick.ac.uk), to Jonathan Walthoe at Cambridge University Press (jwalthoe@cup.cam.ac.uk), or to Susan Hezlet (hezlet@lms.ac.uk) in the LMS office, all of whom will be happy to answer enquiries about the series.

Caroline Series, Warwick  
LMS Student Texts Editor

### Monographs

The LMS Monographs are published for the Society by Oxford University Press. The aim of the Series is to publish authoritative accounts of current research in mathematics and high-quality expository works bringing the reader to the frontiers of research. The volumes are designed to be accessible to graduate students.

Two volumes were published during the course of the year:

Volume 24: "Banach Algebras and Automatic Continuity" xviii + 907pp  
by H.G. Dales;

Volume 25: "The mysteries of the real prime" xiii + 240pp by M.J. Shai Haran.

Professor Brian Davies FRS of King's College, London joined the editorial board. Professor Garth Dales, who has been editor for twelve years and an energetic and successful editor-in-chief for eight of those years, came to the end of his term of office. The Society and Oxford University Press record their very warm thanks for all he has done for the series.

Peter M Neumann  
Oxford

### LMS/AMS History of Mathematics Series

This has been a productive year. In the History Series, there have been:

20. Kolmogorov in Perspective, translated by Hal Mcfaden, advised by Vladimir Drobot

21. Armand Borel, Exercises in the history of Lie groups and algebraic groups

22. Bruce C. Burn and Robert A. Rankin, Eds, Ramanujam: Essays and surveys

(It was a pleasure to Professor Rankin that the manuscript of this volume was handed in just before his death in January 2001.), while, in the new History of Mathematics Sources subseries, there was:

19. Hermann Grassmann, Extension Theory, translated by Lloyd C. Kannanberg

As was announced in last year's report, these Source volumes are numbered along with the others, but they appear immediately in paperback, therefore at a lower cost. This means that they could be used as course books for a group reading, for example, on Dirichlet's Lectures on Number Theory, with Dedekind's Supplement (£24.80 for LMS



members) or the much more intractable volume by Grassmann (£36.80).

This productivity has been mainly due to the vigorous activity of the AMS editors, and the efficient and very cordial organisation of the AMS Acquisitions Assistant, Christine Thivierge. The LMS editors have continued to provide support; they also have welcomed a new member, Peter Neumann (Oxford).

Those who have or know of projects or manuscripts that may be suitable for publication in the series are encouraged to get in contact with a member of the editorial board.

The members of the Editorial Committee are, from the AMS, George Andrews, Joe Dauben, Karen Parshall (Chair) and Mike Rosen, and, from the LMS, David Fowler (Chair), Jeremy Gray, Tom Körner and Peter Neumann.

David Fowler  
Warwick

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### POPULAR LECTURES 2002

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*Geometry Ancient and Modern*

STRATHCLYDE UNIVERSITY Thursday 20 June. Commences at 2.00 pm, refreshments at 3.00 pm, ends at 4.30 pm. Enquiries to Professor A. McBride or Dr A. Ramage, Department of Mathematics, Strathclyde University, Livingstone Tower, 26 Richmond Street, Glasgow G1 1XH (tel: 0141 548 3647/3801, e-mails: a.c.mcbride@strath.ac.uk, a.ramage@strath.ac.uk).

LEEDS UNIVERSITY Thursday 27 June. Commences at 6.30 pm, refreshments at 7.30 pm, ends at 9.00 pm. Enquires to Dr R.B.J.T. Allenby, School of Mathematics, University of Leeds, Leeds LS2 9JT (tel: 0113 233 5122, e-mail: pmt6ra@leeds.ac.uk).

INSTITUTE OF EDUCATION, LONDON Wednesday 3 July. Commences at 7.00 pm, refreshments at 8.00 pm, ends at 9.30 pm. Admission with ticket. Apply by **28 June** to Miss L. Taylor, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (tel: 020 7637 3686, e-mail: taylor@lms.ac.uk). A stamped addressed envelope would be appreciated.

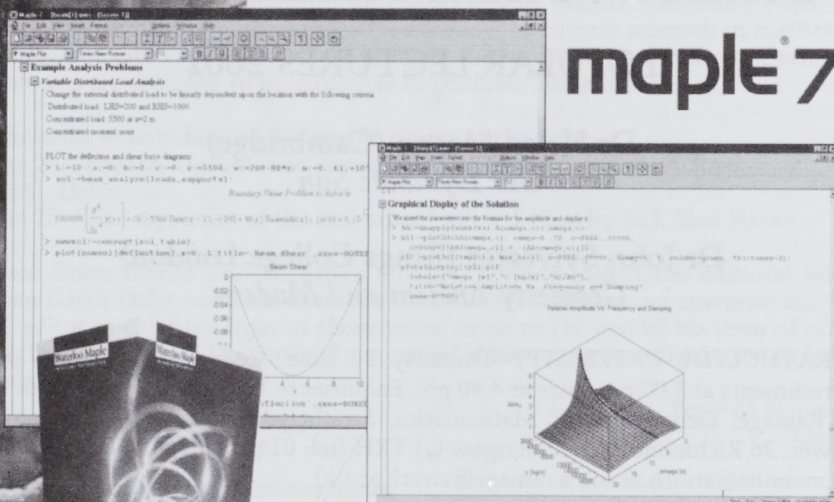
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## BA MEDIA FELLOWSHIPS 2002

The BA Media Fellowships are intended to create greater awareness and understanding of the workings of the media among practising engineers and scientists.

Each year the BA offers practising scientists the chance to experience life as a journalist. The scheme enables fellows to undertake a secondment (on salary, from their employer) of up to 8 weeks with a media organisation, working alongside journalists to gain first hand experience of the news accumulation and selection process. Fellows learn to work within the conditions and constraints of the media to produce pieces for publication/broadcast in the national media, as well as becoming better equipped to communicate their expertise to the public and their colleagues.

In the past the BA have organised placements at print, broadcast and on-line news media as diverse as the BBC Radio Science Unit, New Scientist, Einstein.TV, Countryfile and The Guardian.

The scheme offers:

- A 6-8 week placement with a media host
- Financial assistance with living costs incurred during the period of placements
- An accommodation and travel grant to attend the British Association's Annual Festival of Science as a representative of the media host. (Leicester University 9-13 September 2002)
- Full briefing and debriefing sessions including a reception and presentation of fellowships

Fellowships will be held in the second half of the year at a date to be mutually arranged with the media hosts. It is expected that most of the placements will begin in August and be completed by the end of October. You are eligible to apply if you are a scientist or engineer:

- Resident in the UK
- With a minimum of 2 years experience - in any discipline

- Working in an academic or research institution, industry or the Civil Service
- In full time employment with your employer's consent to be released on full pay

Deadlines for application to the 2002 scheme is **30 April**. Further details and copies of the application forms are available from Eluned Hughes at the BA, 23 Saville Row, London W1S 2EZ (tel: 020 7973 3062, e-mail: [eluned.hughes@the-ba.net](mailto:eluned.hughes@the-ba.net)).

## PERMUTATION PATTERNS 2003

A conference on Permutation Patterns will be held at the University of Otago, Dunedin, New Zealand from 10 - 14 February 2003. Topics will include enumeration questions, excluded pattern questions, study of the involvement order, algorithms for computing with permutation patterns, applications and generalisations of permutation patterns, and others. The keynote speaker is Herbert Wilf. The organisers are Mike Atkinson, Michael Albert and Derek Holton. For further information look on the web (<http://www.cs.otago.ac.nz/staffpriv/mike/PP2003/FirstAnnouncement.html>) or contact Professor Mike Atkinson, Department of Computer Science, University of Otago, P.O. Box 56, Dunedin, New Zealand (tel: +64 3 479 8538, fax: +64 3 479 8529, e-mail: [mike@atlas.otago.ac.nz](mailto:mike@atlas.otago.ac.nz)).

## VISIT OF PROFESSOR E.B. VINBERG

Professor E.B. Vinberg (Moscow State University) will visit the UK from 21 April to 19 May supported by an LMS International Short Visits grant. He will visit Manchester, Glasgow and Warwick Universities. The host of Professor Vinberg's visit is Professor Alexander Premet, Department of Mathematics, Manchester University ([sashap@maths.man.ac.uk](mailto:sashap@maths.man.ac.uk)).

# ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES

## RANDOM STRUCTURES

comprising the linked workshops

COMBINATORIAL & COMPUTATIONAL ASPECTS OF STATISTICAL PHYSICS  
(26 - 30 AUGUST 2002)

RANDOM GRAPHS & STRUCTURES  
(2 - 6 SEPTEMBER 2002)

in association with the Newton Institute programme entitled 'Computation, Combinatorics and Probability' (29 July to 20 December 2002).

### Organisers

Béla Bollobás (Memphis), Martin Dyer (Leeds), Mark Jerrum (Edinburgh), Alan Sokal (New York) and Peter Winkler (Bell Labs).

### Theme of Workshop

The heading "random structures" is intended to cover both the finite (random graphs, partial orders, etc.) and infinite (configurations of some physical model on an infinite lattice). Our aim is to bring together combinatorialists, probabilists, physicists and theoretical computer scientists to engage in an interdisciplinary meeting that will study random structures from various directions.

### Structure

There will be two linked workshops: *Combinatorial and computational aspects of statistical physics* and *Random graphs and structures*. The overarching theme that unites these two is that of phase transition, broadly interpreted. A rough distinction between the two workshops might be that the first deals with phase transitions in infinite systems (e.g., the Ising model on the 2-dimensional square lattice), and the second with "phase transitions" in finite structure (e.g., random graphs or random partial orders). However, this distinction is certainly not intended to be hard-and-fast. Computational questions - such as the extent to which phase transitions may coincide with the boundary between tractable and intractable - will certainly be addressed.

### Tentative Participants

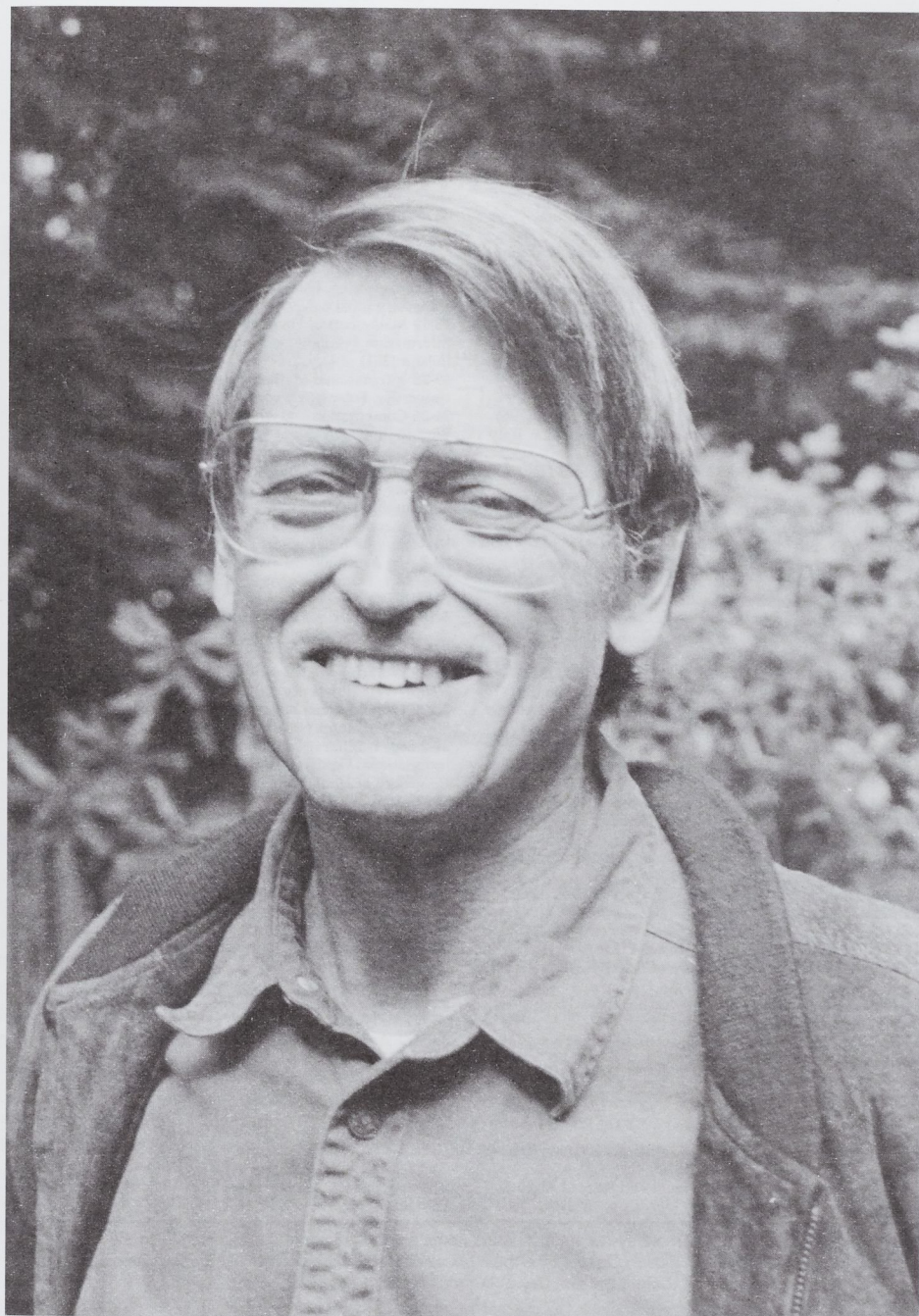
B. Bollobás, G.R. Brightwell, M.E. Dyer, L. Goldberg, G. Grimmett, S. Janson, M.R. Jerrum, J. Kahn, M. Karonski, M. Karpinski, W.S. Kendall, C. McDiarmid, B. Pittel, D. Randall, P. Tetali, A. Thomason, E. Vigoda, P. Winkler.

### Location and Cost

The conference 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 workshop package, costing £715, includes accommodation, breakfast and dinner from dinner on Monday 26 August until breakfast on Saturday 7 September 2002, and lunch and refreshments during the days that lectures take place. Numbers will be restricted to about 80 participants.

Further information and applications forms are available from the web (<http://www.newton.cam.ac.uk/programs/CMP/cmpw02.html>). Completed application forms should be sent to Tracey Andrew, Isaac Newton Institute for Mathematical Sciences, 20 Clarkson Road, Cambridge CB3 0EH, or via e-mail ([t.andrew@newton.cam.ac.uk](mailto:t.andrew@newton.cam.ac.uk)) by **30 April 2002**.





D. MUMFORD  
HONORARY MEMBER 1995



## DIARY

The diary lists Society meetings and other events publicized in the *Newsletter*. Further information can be obtained from the appropriate LMS Newsletter whose number is given in brackets. A fuller list of meetings and events is given in the Society's web site (<http://www.lms.ac.uk/meetings/diary.html>).

### APRIL 2002

- 4 Combinatorics and Set Theory Meeting, De Morgan House, LMS, London (302)
- 5-6 17th British Topology Meeting, Leicester University (301)
- 7-12 Joint BMC/BAMC, Warwick University (296)
- 10 The Problem of Primitives' Lecture, Italian Cultural Institute (301)
- 14-20 Classical N-Body Systems and Applications Workshop, Warwick University (298)
- 16-17 Local Search Workshop, City University, London (303)
- 22-23 Astrodynamics Workshop, Surrey University (298)
- 25-26 Invariant and Symmetry - Preserving Algorithms for N-Body Simulation Meeting, Leicester University (301)
- 29-30 Noncommutative Localization in Algebra and Topology Meeting, ICMS, Edinburgh (303)

### MAY 2002

- 3 Edinburgh Mathematical Society Meeting, Aberdeen (296)
- 13-31 Probability Theory School and Conference, ICTP, Italy (300)
- 15 Assessment with a Purpose Workshop, Sheffield Hallam University (303)
- 17-18 Professor P. McMullen's 60th Birthday Meeting, University College London (303)
- 18 SECANTS, Bristol University (303)
- 19-26 Symmetry and Perturbation Theory Conference, Sardinia, Italy (299)
- 24 Edinburgh Mathematical Society Meeting, Hardy Fellow Lecture (302)
- 27-31 SIMAI 2002 Congress, Chia, Sardinia (303)

### JUNE 2002

- 2-8 Combinatorics 2002 Conference, Maratea, Italy (301)
- 3-8 Abel Bicentennial Conference, University of Oslo (301)
- 5-8 LMS Northern Regional Meeting & Workshop (Algebraic Geometry, Knot Theory and Related Topics), Liverpool University (303)
- 7 Edinburgh Mathematical Society Meeting, St Andrews (296)
- 10-16 Aarhus Topology Conference, Aarhus University (301)
- 10-16 Nonstandard Methods and Applications in Mathematics Congress, Pisa, Italy (303)
- 12-16 Unione Matematica Italiana/American Mathematical Society Joint Meeting, Pisa, Italy (303)
- 17-21 Householder Symposium XV, Peebles Hydro Hotel, Scotland (296)
- 20 LMS Popular Lectures, Strathclyde University (302)
- 21 LMS Meeting, Hardy Lecture, London (298)
- 21-26 Symmetries and Integrability of Difference Equations, Giens, France (301)
- 24-28 Analytic Number Theory Workshop, Max Plank Institute, Bonn (288)
- 24-29 Topology, Geometry and Quantum Field Theory Symposium, Oxford (300)
- 27 LMS Popular Lectures, Leeds University (302)
- 27-2 July LMS Invited Lectures, Professor P. van Moerbeke, Leeds University (302)

### JULY 2002

- 1-6 The Teaching of Mathematics Conference, Crete, Greece (297)
- 1-11 Representations of Finite Groups and Related Algebras, LMS Durham Symposia, Durham University (302)

- 3 LMS Popular Lectures, Institute of Education, London (302)
- 7-19 Numerical Analysis Summer School, University of Durham (295)
- 8-19 Normal Forms, Bifurcations and Finiteness Problems in Differential Equations SMS-NATO ASI Meeting, Université de Montréal, Canada (298)
- 8-26 Algebraic K-theory and its Applications School and Conference, ICTP, Italy (300)
- 15-25 Computational Methods for Wave Propagation in Direct Scattering, LMS Durham Symposia, Durham University (302)
- 18-19 Mathematical Foundations of Computer Science and Information Technology Conference, National University of Ireland (301)
- 19-25 International Mathematics Competition, Warsaw University, Poland (303)
- 21-26 Computation and Analytic Problems in Spectral Theory Workshop, University of Wales (296)
- 21-27 Geometry, Symmetry and Mechanics II Workshop, Warwick University (298)
- 23-2 Aug EDGE mid-term Summer School and Conference, Edinburgh (299)
- 26-27 Meeting in honour of 65th birthday of M.S.P. Eastham, University of Wales (296)
- 29-8 Aug Astrophysical Fluid Mechanics, LMS Durham Symposia, Durham University (302)

### AUGUST 2002

- 5-15 New Directions in Dynamical Systems, Ryukoku and Kyoto Universities (293)
- 20-28 ICM2002, Beijing, China (297)
- 21-29 Workshop on Modern Problems in Applied Probability, Heriot-Watt University (301)
- 26-30 Combinatorial & Computational Aspects of Statistical Physics Workshop, Newton Institute, Cambridge (303)
- 29-2 Sept Nonlinear Partial Differential Equations International Conference - Theory and Approximation, City University of Hong Kong (297)

### SEPTEMBER 2002

- 1-9 Algebraic Hyperstructures and Applications Congress, Samothraki Island, Greece (300)
- 2-6 Random Graphs & Structures Workshop, Newton Institute, Cambridge (303)
- 9-20 Axiomatic, Enriched and Motivic Homotopy Theory Conference, Isaac Newton Institute, Cambridge (302)
- 9-27 Intersection Theory and Moduli, ICTP, Italy (300)
- 30-4 Oct K-theory and Arithmetic Conference, Isaac Newton Institute, Cambridge (302)

### OCTOBER 2002

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

### NOVEMBER 2002

- 22 LMS Annual General Meeting, London

### FEBRUARY 2003

- 10-14 Permutation Patterns Conference, Otago University, New Zealand (303)

### APRIL 2003

- 7-10 BMC, University of Birmingham (296)

### JULY 2003

- 7-11 ICIAM 2003, Sydney, Australia (298)
- 27-9 Aug Banach Algebras and their Applications Conference, Edmonton, Alberta (302)

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

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