THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 268

February 1999

FORTHCOMING SOCIETY MEETINGS Friday-Saturday 12-13 February 1999 - Leeds Proof and Computation Friday-Sunday 14-16 May 1999 - Brussels Joint meeting with the Belgian Mathematical Society Friday 18 June 1999 - London Hardy Lecture Friday-Saturday 15-16 October - London New Applications of Twistor Theory

1999 LMS PRIZES

The Council proposes to award, in Summer 1999, a Polya Prize, a Senior Whitehead Prize, a Junior Berwick Prize and one or more Junior Whitehead Prizes. Accordingly, it has appointed M.J. Taylor, K.A. Brown, D.G. Crighton, E.B. Davies, G.B. Segal and N. Trefethen to the 1999 Prizes Committee.

The Council invites members of the Society to submit their views on possible candidates for the award of these Prizes confidentially in writing to any member of the Prizes Committee by 1 March 1999. In each case, nominations should contain explicit reference to the grounds on which the nomination is based. Council reserves the right not to make an award in the event that no candidate of sufficient merit is recommended by the Prizes Committee for a particular Prize.

The **Polya Prize** is awarded in recognition of outstanding creativity in, imaginative use of, or distinguished contribution to, mathematics within the United Kingdom.

The **Senior Whitehead Prize** can only be awarded to a mathematician who is normally resident in the United Kingdom on 1 January 1999. Grounds for the award may include work in, influence on or service to mathematics, or recognition of lecturing gifts in the service of mathematics. This prize may not be awarded to any person who has previously received the De Morgan Medal.

The Junior Berwick Prize is awarded in recognition of an outstanding piece of mathematical research actually published by the Society during the four years ending on 31 December 1998 to a mathematician who on 1 January 1999 is a member of the Society, is under the age of forty years, and is not a Fellow of the Royal Society. This prize may not be awarded to any person who has previously received the De Morgan Medal, the Senior Berwick Prize or the Senior Whitehead Prize.

The Junior Whitehead Prizes are awarded to mathematicians who on 1 January 1999 are normally resident in the United Kingdom or members of the Society mainly educated in the United Kingdom, who are not already Fellows of the Royal Society, and who are under the age of forty years (except that this age restriction may be relaxed when it appears desirable to do so in order to take fair account of broken career patterns). Grounds for the award may include work in and influence on mathematics. This prize may not be awarded to any person who has previously received the De Morgan Medal, the Polya Prize, the Senior Berwick Prize, the Senior Whitehead Prize or the Junior Berwick Prize.

Members are reminded of the announcement in the January Newsletter of Council's intention that the scope of the Junior Whitehead prizes should include all aspects of mathematics including applied mathematics, mathematical physics and mathematical aspects of computer science.

No person may be awarded a given Prize more than once, and the President of the Society and the members of the Prizes Committee are ineligible for any of the awards. The detailed regulations and procedure for the award of each Prize can be obtained from the Administrator, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HP (lms@lms.ac.uk).

J.S. Pym Council and General Secretary

1999 LMS NAYLOR PRIZE AND LECTURESHIP IN APPLIED MATHEMATICS

The 1999 Naylor Prize and Lectureship is awarded to Professor S.W. Hawking of Cambridge University. Professor Stephen Hawking is one of the world's leading theoretical physicists who has contributed many ideas of great mathematical significance and elegance. In particular, he and Roger Penrose were chiefly responsible for the singularity theorems that show in what situations collapse to a singularity is inevitable in classical general relativity. He developed global methods of analyzing black holes, and then - in what was one of the most unexpected developments in theoretical physics this century - he discovered the quantum mechanical process by which black holes radiate, known today as 'Hawking radiation', and which led to the beautiful subject of black hole thermodynamics. He used these ideas to develop the "Euclidean" approach to quantum gravity, which culminated in famous work with Hartle on the construction of a "wave function for the universe".

1999 LMS DURHAM SYMPOSIA

There will be two symposia in 1999:

STOCHASTIC ANALYSIS

Tuesday 29th June to Friday 9th July Organisers: Professor T.J. Lyons (Imperial, London)*, Professor E. Bolthausen (Zurich), Professor L. Grogg (Cornell) Provisional main speakers: G. Ben Arous (Lausanne), D. Dawson (Toronto), B. Driver (San Diego), S. Evans (UC Berkeley), H. Föllmer (Berlin), T. Kurtz

(Madison), E. Perkins (Vancouver), L. Saloffe-Coste (Cornell), S. Watanabe (Japan).

QUANTUM GROUPS

Monday 19th to Thursday 29th July Organisers: Professor A.N. Pressley (King's, London)*, Professor A. Sudbery (York), Professor S. Donkin (QMW, London). Provisional main speakers: J. Bernstein (Tel Aviv), E. Effros (UCLA), E. Frenkel (Berkeley), T. Koorwinder (Amsterdam), P. Littlemann (Strasbourg), M. Kashiwara (RIMS, Kyoto), A. Varchenko (UNC Chapel Hill).

These research symposia are organised under the auspices of the LMS and are supported by Research Grants from EPSRC. There may be a few places available for mathematicians not yet invited. Those interested should write for more information to the organisers marked * at the following addresses: Professor T.J. Lyons, Department of Mathematics, Imperial College, 180 Queen's Gate, London SW2 2BZ; Professor A.N. Pressley, Department of Mathematics, King's College, Strand, London WC2R 2LS.

LONDON MATHEMATICAL SOCIETY TWO-DAY MEETING FRIDAY 12th AND SATURDAY 13th FEBRUARY 1999

Fairborn House, 71-75 Clarendon Road, University of Leeds

PROOF AND COMPUTATION

Friday

2.00	Opening
2.10 - 3.10	G. Plotkin (Edinburgh)
	Abstract syntax and variable-binding
3.20 - 4.20	J.M.E. Hyland (Cambridge)
	Herbrand's theorem
4.30 - 5.00	Tea
5.00 - 6.00	W. Pohlers (Münster)
	How does proof theory help us to understand
	the mathematical universe?
7.00	Dinner

Saturday

9.00 - 10.00	H. Schwichtenberg (Münich)
10.00 10.00	Programming with proofs
10.00 - 10.30	Coffee
10.30 - 11.30	P. Martin-Löf (Stockholm)
	The semantic significance of computing
11.40 - 12.40	P. Aczel (Manchester)
	The logic of Lego
12.45 - 1.30	Lunch
1.30 - 2.30	D. Normann (Oslo)
	Computable objects in typed structures
2.30	Tea

All interested are very welcome

Those wishing to attend should inform Mrs A. Landford, Department of Pure Mathematics, University of Leeds, Leeds LS2 9JT (a.landford@leeds.ac.uk) as soon as possible. Participants wishing to take dinner on the Friday evening and/or lunch on the Saturday should also send a cheque, payable to the University of Leeds, to cover the cost (dinner £15, lunch £8). Please note that immediately before and following this meeting, there will be a Research Workshop on Proof Theory, also at Fairbairn House and supported by the London Mathematical Society. This will begin at 2 pm on Thursday 11th February. A list of guesthouses within fairly easy reach of the University will be available on request from Mrs Landford, for those requiring accommodation.

There are limited funds available to help research students attend the meeting. Requests for support may be addressed to Dr D.J.H. Garling, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HP (e-mail: garling@lms.ac.uk).

RESEARCH STUDENTS' CONFERENCE IN PROBABILITY & STATISTICS 1999

The 22nd annual Research Students' Conference will be held at the University of Bristol, 22nd-25th March 1999. Participants are postgraduate students researching in the fields of probability and statistics. The purpose of the meeting is to provide a forum for participants to exchange research ideas through oral and poster presentations. The conference is arranged as a series of parallel sessions, with opportunity for informal discussion during evening social events.

Complete up-to-date details (and electronic registration form) are available from the RSC99 web page (http://www.stats. bris.ac.uk/~madrmh/RSC99/intro.html). Further details may also be obtained from Miles Harkness, School of Mathematics, University Walk, Bristol BS8 1TW (e-mail: rsc-99@bris.ac.uk). The conference is sponsored by: Amgen Ltd, Arnold Publishers, Eli Lilly & Company Ltd, Ford Motor Company, Glaxo Wellcome, John Wiley & Sons Ltd, London Mathematical Society, Mathsoft-Developers of S-Plus, Minitab Ltd. Office for National Statistics, Pfizer, Research International, Royal Statistical Society, Smithkline Beecham Pharmaceuticals, Unilever and Zeneca Agrochemicals.

BANACH ALGEBRAS

The 14th International Conference on Banach Algebras will be held at Pomona College in Claremont, California, from Sunday, 25 July until Saturday 7 August 1999; the title is "Banach Algebras and Operators on Banach Spaces". Claremont is in Southern California, approximately 40 miles east of the centre of Los Angeles; housing at Pomona College is available. For further information, please contact the organisers at BA99@CSUBAK.EDU or H.G Dales at Leeds University (e-mail: pmt6hgd@leeds.ac.uk). Additional information can also be found at the web site http://www.cs.csubak.edu/~ba99/.

COMBINATORICS AND COM-MUNICATIONS APPLICATIONS

A two-day workshop (jointly sponsored by the EPSRC and the LMS under the MathFit programme) on Combinatorics and Communications Applications will be held at Royal Holloway, University of London, on 14 and 15 April 1999. The workshop is particularly aimed at PhD students who would like to know more about the area, although any interested participants are welcome. Registration and accommodation are free for EPSRC students. The workshop is timed so that participants can easily stay for the Postgraduate and Group Theory Combinatorial Conferences held from 15, to 17 April.

Talks will be a mixture of introductory lectures and higher level research surveys. Speakers who have provisionally accepted include Ray Hill (Salford), James Massey (until recently at ETH Zurich), Kenny Paterson (HP Labs, Bristol), Fred Piper (Royal Holloway), Doug Stinson (Waterloo), Mike Walker (Vodafone/Royal Holloway) and Dominic Welsh (Oxford).

Registration details and further information about the workshop may be obtained by contacting Simon Blackburn (s.black burn@rhbnc.ac.uk), Steven Galbraith (ste venga@dcs.rhbnc.ac.uk) or Chris Mitchell (c.mitchell@rhbnc.ac.uk), or by accessing the web page (http://isg.rhbnc.ac.uk/Math fit.htm).

RESEARCH WORKSHOP ON PROOF THEORY

The two-day LMS meeting on Proof and Computation at the University of Leeds, 12th-13th February, will be immediately preceded and followed by a research workshop on Proof Theory also supported by the LMS. This will begin at 15.30 on Thursday 11th and will continue on the morning of Friday 12th and the later afternoon of Saturday 13th, after the LMS meeting. Speakers will include A. Cantini (Florence), T. Carlson (Ohio), E. Palmgren (Uppsala), A. Setzer (Uppsala), A. Weiermann (Münster), T. Strahm (Bern) and H. Simmons (Manchester).

HOMOLOGICAL ALGEBRA

EPSRC-LMS Short Course

This course will be held at Edinburgh University from Tuesday, 6th April 1999 (arrival on 5th April) to Saturday, 10th April. Funding will be provided by EPSRC with a contribution from the LMS.

The aim of the course is to present the basic facts of homological algebra and to indicate some natural uses in algebraic number theory, topology and group theory. There will be three courses of 6 lectures each. The lectures will be accessible to beginning research students, but are likely to be of benefit to all research students. No special knowledge will be assumed. There will be daily tutorials at which Ian Leary (Southampton) and Peter Symonds (UMIST) will discuss the course material and help students with difficulties. The three courses will be as follows:

Basic homological algebra: Karl Gruenberg (QMW)

Categories and functors; free and cofree modules, projective and injective modules, adjointness. Complexes, resolutions, cohomological functors. The Ext functor. Homology and the Tor functor. Module extensions. Basic facts on group cohomology.

Arithmetic cohomology: Martin Taylor (UMIST)

Galois descent with examples GL_n , SP_n , O_n and application to quadratic forms. Lang's and Kneser's theorems on the vanishing of $H^1(K,G)$. Central simple algebras, the Brauer group and statement of local class field theory. Definition and basic facts on profinite groups with the fundamental example of infinite Galois groups. Cohomology of profinite groups. Dualising modules. Kummer theory. Cohomological dimension of a field.

Cell complexes and applications to group cohomology: Peter Kropholler (QMW) The fundamental group and van Kampen's theorem. G-CW-complexes, Euler class, Euler characteristic. Examples such as group actions on trees, arithmetic groups, symmetric spaces. Cohomological finiteness conditions and Serre's theorem on finite virtual cohomological dimension. Duality, manifolds and Poincaré duality.

Anyone wishing to learn this material will be welcome. EPSRC-funded postgraduate students will have their accommodation charges paid in full and they will be able to claim their travel expenses directly from EPSRC. Other UK postgraduate students are likely to be given partial support. The number of participants is limited; preference will be given to early applicants. Further details and application forms are available from Dr D.J.H. Garling at London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HP (e-mail: garling@lms.ac.uk). Applications should be made by **20 February 1999.**

VISIT OF DR N.P. DOLBILIN

Dr Nikolai Dolbilin is a Senior Researcher at the Moscow branch of the Steklov Mathematical Institute, Russia. He works with tilings, particularly being concerned with questions about periodicity and nonperiodicity, and also with rigidity problems in geometry. He will visit University College London and Birkbeck College, London, between 22 February and 6 March 1999, supported by the fSU Scheme of the LMS. It is proposed that Dr Dolbilin also give talks at Cambridge and Oxford Universities. Further details can be obtained from Professor Peter McMullen (p.mcmullen@ucl.ac.uk).

VISIT OF PROFESSOR A. PAZHITNOV

Professor A. Pazhitnov of Nantes will speak at the University of Durham on 22nd February (Morse theory of maps to the circle), at the University of Edinburgh on 26th February, at the University of Oxford on 1st March (Simple homotopy type of Novikov complex and zeta function of the gradient flow), and at the University of Warwick on 2nd March. For locations and times of the talks contact Dr C. Kearton, Professor A.A. Ranicki, Professor N.J. Hitchin and Professor J.D.S. Jones respectively. This visit is receiving support from the LMS under a Scheme 2 grant.

COMBINATORIAL CONFERENCE

The 17th British Combinatorial Conference is to be held at the University of Kent at Canterbury, 12 – 16 July 1999. The main programme consists of The Rado Lecture, which will be given by Professor W.T. Tutte, FRS, "The Coming of the Matroids".

The Invited Talks are as follows:

• "Polynomials in finite geometries" Simeon Ball (Technical University Eindhoven)

- "Selected applications of design theory" Jeff Dinitz (University of Vermont)
- "Random walks on combinatorial objects" Martin Dyer (University of Leeds)
- "Covers and blocking configurations in projective spaces and in polar spaces" Klaus Metsch (Giessen University)
- "Geometric graph theory" Janos Pach (Courant Institute NY)
- "Excluded minors of graphs" Robin Thomas (Georgia Institute of Technology)
- "Cycle space and parity in graph theory" Carsten Thomassen (Technical University Denmark)
- "Models of random regular graphs" Nick Wormald (Melbourne University)

The local organisers are Professor D.A. Preece (Institute of Mathematics and Statistics, UKC) and Dr J.D. Lamb (Canterbury Business School, UKC). The British Combinatorial Committee is grateful for financial support from the LMS.

QUADRATIC FORMS AND THEIR APPLICATIONS

A conference on "Quadratic Forms and Their Applications" will be held at University College, Dublin, Ireland, from 5-9 July 1999. The conference is supported by the European Union under the auspices of the TMR network project "K-theory, linear algebraic groups and related structures". The main speakers will be A. Berge (Bordeaux), J.J. Boutros (Paris), J.H. Conway (Princeton), D. Hoffmann (Besancon), C. Kearton (Durham), M. Kreck (Mainz/Oberwolfach), R. Parimala (Bombay), M. Rost (Regensburg), W. Scharlau (Muenster), J.P. Serre (Paris), M. Taylor (Manchester), C.T.C. Wall (Liverpool). The organizers are Eva Bayer-Fluckiger, Besançon (bayer@math.univ-Lewis, Dublin David fcomte.fr), (dwlewis@ollamh.ucd.ie) and Andrew Ranicki, Edinburgh (aar@maths.ed.ac.uk). Electronic registration: http://mathsa.ucd. ie/TMR/quadconf.html.

New Titles in Mathematics

FromOxford

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The Life of L. E. J. Brouwer: Volume 1: The Dawning Revolution

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464 pages, 41 halftones, 34 line illustrations £75.00 0-19-850297-4 January 1999

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Review of the first edition

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American Mathematical Society September 1998 712 pages £45.00 0-8218-0772-2

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ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES

and

HEWLETT-PACKARD'S BASIC RESEARCH INSTITUTE IN THE MATHEMATICAL SCIENCES (BRIMS)

Hewlett-Packard Senior Research Fellow

The Isaac Newton Institute for Mathematical Sciences wishes to recruit a Hewlett-Packard Senior Research Fellow. This is a full-time research appointment for an outstanding mathematical scientist. The position is currently held by Dr Sandu Popescu, who will be moving to a Chair in the Department of Physics at Bristol University. The appointment will be for up to three years from October 1999, with the possibility of renewal for a further two years.

The successful candidate will be based in Cambridge at the Newton Institute but would be expected to participate also in the scientific life of Hewlett-Packard's Basic Research Institute in the Mathematical Sciences (BRIMS) in Bristol.

Researchers at BRIMS are free to pursue their own research programmes in areas of mathematical science of long-term relevance to Hewlett-Packard. Current research areas include quantum physics, probability theory and dynamical systems with a developing interest in mathematical economics. The research undertaken at BRIMS is overseen by an independent Scientific Board whose members are Michael Atiyah (Chair), John Ball, Michael Berry, Jean-Pierre Bourguignon, Joe Keller, Frank Kelly and Keith Moffatt.

The appointment could be at any point up to full professorial level.

For further details please contact Professor Keith Moffatt, Director, at the Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH, telephone: 01223 335980, fax: 01223 330508, email: hkm2@newton.cam.ac.uk

Further information about the Newton Institute is available on the World Wide Web at: http://www.newton.cam.ac.uk/ and about BRIMS at: http://www-uk.hpl.hp.com/brims/. The closing date for applications is 28th February 1999.

The University follows an equal opportunities policy.

Back to the Future

CLASSICS IN MATHEMATICS COCIM



R. Courant, F. John Introduction to Calculus and Analysis 1

Reprint of the 1989 ed. 1998. XXVI, 662 pp. Softcover £ 26.00 ISBN 3-540-65058-X

From the reviews:

"Volume 1 covers a basic course in real analysis of one variable and Fourier series. It is well-illustrated, well-motivated and very well-provided with a multitude of unusually useful and accessible exercises. (...) It is the best text known to the reviewer for anyone trying to make an analysis course less abstract. (...)"

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The Australian Physicist



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Reprint of the 1976 ed. 1998. X, 94 pp. Softcover £ 26.00 ISBN 3-540-65036-9

From the reviews:

"As a contribution to the history of mathematics, this is a model of its kind. While adhering to the basic outlook of Eisenstein and Kronecker, it provides new insight into their work in the light of subsequent developments. (...) a wideranging survey of one of the most active branches of mathematics at the present time. The book has its own very individual flavour, reflecting a sort of combined Eisenstein-Kronecker-Weil personality. The persistent reader will be richly rewarded."

> Bulletin of the London Mathematical Society



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NON-SECRET ENCRYPTION AND PUBLIC KEY CRYPTOGRAPHY

A lecture will be given by Dr Whitfield Diffie (Sun Microsystems, California) on "Non-secret Encryption and Public Key Cryptography" in the Gustave Tuck Lecture Theatre, University College, London, at 17.30 on Thursday 29 April 1999. In a remarkable case of 'scientific parallelism', a secret British group and a public American group, working entirely independently, made very similar discoveries during the early 1970s. The discovery was a revolutionary new form of cryptography. What was 'Non-secret Encryption' to the British and 'Public Key Cryptography' to the Americans, is at the heart of internet commerce and is achieving wide use throughout telecommunication. The speaker, whose interests are both historical and scientific, was a participant in the American endeavour and has studied the work of the British team since the early 1980s.

The organisers are the British Society for the History of Mathematics and the Department of Computer Science, University College, London. Further details on the BSHM web site (http://www. dcs.warwick.ac.uk/bshm/) and from J.V. Field, Department of History of Art, Birkbeck College, 43 Gordon Square, London WC1H 0PD (fax and voice messages 0171 736 9198; e-mail jv.field@histart.bbk.ac.uk).

LMS 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 £1000 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) and D. Zagier (1998). The 1999 lectures will be given at the University of Bath by A. Mielke.

For the 2000 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 4HP (e-mail: garling@lms.ac.uk, tel: 0171 637 3686, fax: 0171 323 3655) to whom proposals should be sent no later than Friday 23 April 1999.

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Now...

The Mathematics of Ciphers: Number Theory and RSA Cryptography S. C. Coutinho

1999; ISBN 1-56881-082-2 hardcover; 198 pp.; \$30.00, £19.00

What do prime numbers, multiplication, and factoring have in common? They are all part of *The Mathematics of Ciphers*, code-building at its best.

Revised and updated since its publication in Portuguese in 1997, this highly accessible book is an introduction to the algorithmic aspects of number theory and its applications to cryptography. Accompanied by historical anecdotes, the familiar topics of number theory are defined and explored. The author takes the reader on a leisurely journey through this fascinating field, culminating in a visit to the RSA cryptosystem.

...AND THEN

The Queen of Mathematics: A Historically Motivated Guide to Number Theory Jay Goldman

1997; ISBN 1-56881-006-7 hardcover; 525 pp.; \$59.95, £45.00

"The title of the book derives from Gauss' famous assertion that number theory is 'the queen of mathematics.' As one of those who fervently believes Gauss' dictum, once I began to read Goldman's book, I had difficulty putting it aside and consequently went to bed later than I should have for two successive nights.... There are few mathematics books that are more enjoyable and inspiring than this one. The *Queen* of Mathematics should be in the library at any college or university where mathematics is taught."

> —Bruce Berndt Two Year College Mathematics Journal

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Joint meeting of the London Mathematical Society and the Belgian Mathematical Society Université Libre de Bruxelles, May 14-16, 1999

BING

Second Announcement

PROGRAMME

Plenary lectures

Two lectures on Saturday morning, two lectures on Sunday morning

H Föllmer (Humboldt U Berlin) Stochastics in finance

W T Gowers (Cambridge)

M Kontsevich (IHES)

A Macintyre (Edinburgh) Between Model Theory and Intersection Theory

Parallel Sessions

40 minutes lectures on Friday and Saturday afternoon

Algebraic geometry and mathematical logic

Organizers: J Denef (K U Leuven), C Michaux (U M H Mons), W A Hodges (Queen Mary and Westfield College, London)

D Abramovitch (Boston University) Moduli, families and stacks

A Borovik (UMIST Manchester) Tame groups of finite Morley rank and even type

Z Chatzidakis (CNRS - Paris 7) Model theory of difference fields

M Coppens (Katholieke Hogeschool Kempen, Ceel)

T Gardener (Oxford) Non-standard intersection theory

F Loeser (Paris 6) Motives and p-adic integrals

T Scanlon (Berkeley) Diophantine geometry and the model theory of difference fields in positive characteristic

W Veys (K U Leuven) Structure of open surfaces with non-positive Euler characteristic

Combinatorics and finite geometries

Organizers: P J Cameron (Queen Mary and Westfield College, London), J A Thas (R U Gent)

M Aigner (Freie Univ Berlin) The Penrose polynomial
A E Brouwer (T U Eindhoven)
F Buekenhout (U L Bruxelles) Incidence geometry and finite groups
W Haemers (K U Brabant, Tilburg)
J W P Hirschfeld (Sussex) Arcs and curves over a finite field
H Van Maldeghem (R U Cent) Generalized polygons
D Welsh (Oxford) Arrangements, channel assignments and related polynomials
G Ziegler (Techn Univ Berlin) Coloring of Hamming graphs and the 0/1-Borsuk problem

BLY99

Differential geometry and mathematical physics

Organizers: N J Hitchin (Oxford), L Lemaire (U L Bruxelles)

J-C Alvarez (U C Louvain) Integral geometry on Finsler manifolds B Bowditch (Southampton)

M Cahen (U L Bruxelles) Variational principle and symplectic connexions

R Dijkgraaf (Amsterdam) (to be confirmed)

B Driver (U C San Diego) Heat kernel analysis on loop groups

M Gross (Warwick) Special Lagrangian fibrations and mirror symmetry

D Joyce (Oxford) Resolving Riemannian orbifolds with special holonomy

A Reznikov (Durham) Fundamental groups of complex projective varieties, property T and second cohomology

Stochastic mathematics

Organizers W S Kendall (Warwick), N Veraverbeke (L U C Diepenbeek)

L Devroye (McGill) Branching processes in computer science

B Driver (U C San Diego) Heat kernel analysis on loop groups

P Embrechts (E T H Zurich) The mathematics of financial risk management

R Griffiths (Oxford) Coalescent theory and stochastic distribution of gene trees

G Louchard (U L Bruxelles) The Brownian excursion multidimensional local time density

G P Nason (Bristol) Time-scale analysis

D O Siegmund (Stanford-Cambridge) Searching for signals against a noisy background

J Teugels (K U Leuven) Extremes in theory and applications

Local organizing committee: L Lemaire, J Leroy, M Parker, Campus Plaine ULB, Boulevard du Triomphe, C P 218/01, B-1050 Bruxelles (e-mail: leroy@ulb ac be; tel: (32)(2)650 58 45; fax: (32) (2)650 58 67).

Accommodation

Hotel accommodation: Special rates for participants are available in some hotels located in the centre of Brussels (near the Grand-Place) with direct bus and/or underground connection to the University Campus. Prices per night per room range from BEF 2,300 to BEF 2,600 for a single room, and from BEF 2,700 to BEF 3,200 for a double room.

Accommodation at budget prices: Rooms at the following budget prices are available in the University Sports Centre, with an easy underground connection to the University Campus (10 minutes) and to the centre of the city (20 minutes). For two nights, breakfast included: single room BEF 1,460 per person, double room BEF 1,120 per person, quadruple room BEF 960 per person. These rooms have no private facilities.

Registration

An "electronic" registration form is also available on the homepage of BLMS'99 (http://www.ulb.ac.be/assoc/bms/BLMS'99.html) where the information about the meeting will be regularly updated. For organization purposes, we would ask you, even if you do not need any hotel accommodation, to send or fax the registration form as soon as possible to: Jules Leroy, Campus Plaine ULB, C P 218/01, Boulevard du Triomphe, B-I050 Brussels (e-mail: leroy@ulb ac be; tel: (32) (2) 650 58 45, fax: (32)(2)650 58 67).



THE UNIVERSITY of LIVERPOOL

CHAIR OF PURE MATHEMATICS

Salary negotiable

Applications are invited for a Chair of Pure Mathematics tenable from 1 October 1999. Pure Mathematics is a constituent division of the Department of Mathematical Sciences, the others being Applied Mathematics, Statistics and Operational Research, and Theoretical Physics. In the last RAE Pure Mathematics achieved a grade 5 rating. As part of a major commitment to improve the division's research performance the University wishes to make an appointment to the Chair of Pure Mathematics (which has become vacant with the transfer of CTC Wall F.R.S. to a research only position) and seeks candidates, from any area of Pure Mathematics, who will provide strong research leadership to the division. The University is making available two additional lecturer posts to be appointed following the selection of the successful candidate to the Chair.

Informal enquiries may be made to the Dean of the Faculty of Science, Professor Tony Harris on 0151 794 3563, email: sr45@liverpool.ac.uk or to the Head of the Department, Professor Bill Bruce on 0151 794 4062, email: jwbruce@liverpool.ac.uk.

Quote Ref: B080

Closing Date: 5th March 1999

Further particulars and details of the application procedure may be requested from the Director of Personnel, The University of Liverpool, Liverpool L69 3BX on 0151 794 2210 or via email: jobs@liv.ac.uk

Working Towards Equal Opportunities

ONE-DAY MEETING IN COMBINATORICS

A one-day meeting in Combinatorics will take place on Monday 15th February at the Department of Mathematics, University College London. The meeting will begin at 11 am and speakers will include Graham Brightwell (LSE), Mark Jerrum (Edinburgh), Andrew Thomason (Cambridge) and Dominic Welsh (Oxford). Financial support is being provided by the London Mathematical Society and the British Combinatorial Committee. For further information, contact Alex Scott (e-mail: scott@math.ucl.ac.uk, tel: 0171 504 2128), or consult the web page (http://www.ucl. ac.uk/Mathematics/).

NONLINEAR PARTIAL DIFFERENTIAL EQUATIONS

First announcement

An international conference in memory of S.N. Kruzhkov will be held at Besançon, from 28 June to 2 July 1999. Stanislav Nikolaevich Kruzhkov (1936-1997), Professor at the M.V. Lomonosov Moscow State University, greatly influenced the theory of nonlinear partial differential equations by many important and very original contributions. The objective of this international conference is to pay just tribute to his memory, by presenting recent developments in the domains where his ideas are particularly fruitful. The conference will take place in Besançon (France), at the Université de Franche-Comté, which Stanislav Kruzhkov visited many times after 1992.

The conference is placed under the patronage of a Steering Committee made up of N.S. Bakhvalov, M.G. Crandall, C.M. Dafermos, P.-L. Lions, and O.A. Oleinik of the M.V. Lomonosov Moscow State University, and the European Networks (TMR) "Hyperbolic Systems of Conservation Laws" and "Viscosity Solutions and their Applications".

The scientific program includes the following themes:

- Conservation Laws
- Hamilton-Jacobi Equations and Viscosity Solutions
- Entropic Solutions and Renormalised Solutions
- Nonlinear Parabolic Problems
- Korteweg de Vries Equation.

Plenary lectures will be delivered by the members of the Steering Committee and: A. Bressan (Trieste), X. Cabré (Barcelona), Th. Gallouët (Marseille), A.S. Kalashnikov (Moscow), C.E. Kenig (Chicago), S. Luckhaus (Leipzig), F. Otto (Santa Barbara), E.Yu. Panov (Novgorod), D. Serre (Lyon), I.V. Skrypnik (Donetsk), H.M. Soner (Princeton), P.E. Souganidis (Madison), L.G. Tartar (Pittsburgh), J.L. Vazquez (Madrid).

Lectures in parallel sessions will be organized on each of the themes of the conference. Participants are invited to submit a communication by sending an abstract of 15 to 20 lines by **21 March 1999**.

The Scientific Committee is composed of: C. Bardos (Paris), G. Barles (Tours), Ph. Bénilan (Besançon), J. Carrillo (Madrid), V.L. Kamynin (Moscow), F. Murat (Paris), B. Perthame (Paris). The Organizing Committee includes: A. Benabdallah, Ph. Bénilan, B. Andreianov, L. Barthélemy, J.-C. Miellou, M. Mokhtar-Kharroubi, F. Simondon. Secretaries: M. Diguglielmo, C. Pagani.

Registration fee is: FF 500 (FF 600 if paid after 16 May 1999). For further information consult the web page (http://pegase. univ-fcomte.fr/Actu/Index.html), contact the Organizing Committee by e-mail (SNKConf@math.univ-fcomte.fr) or by telephone (33)3.81.66.63.40. Use the web site for registration or send the pre-registration form to: Mme Diguglielmo, Équipe de Mathématiques, Université de Franche-Comté, 25030 Besançon Cedex, France (fax 33 3.81.66.65.26).

Isaac Newton Institute for Mathematical Sciences A NATO Advanced Study Institute Structure Formation in the Universe

Organisers: R G Crittenden, VA Rubakov, P J Steinhardt and N G Turok 26 July - 6 August 1999

Programme Theme

The hot big bang theory successfully explains the basic properties of our universe, but it does not address what is perhaps the most interesting question, namely how the structures we see in the universe - planets, stars and galaxies - came to be formed.

Over the last two decades, several theories of structure formation have been investigated, and due to advances in observational techniques these theories are being tested to increasing precision. A host of new experiments, including dedicated satellites from ESA and NASA, will map the cosmic microwave sky, giving us an unprecedentedly clear view of the universe at early epochs, and on the largest visible scales. In parallel, there is a rapidly growing set of complementary data including surveys of the large scale galaxy distribution and the velocity field, of galaxies, quasars and Lyman alpha clouds at high redshift, and of the mass distribution from gravitational lensing.

Theories connecting the origin of structure to fundamental high energy physics include variants of the inflation and cosmic defect theories. According to the latest data, the simplest versions of each appear clearly ruled out. Nevertheless modifications of the theories appear viable at present. If one of the simpler modifications turns out to be correct, we shall be able to determine the cosmological parameters with some precision. Conversely, the refutation of current theories will demand new theoretical ideas.

The ASI will consist of ten days of pedagogical lectures including reviews of the current status of the observations and of the leading theories.

Topics to be covered include:

- Inflation
- Cosmic Defects
- High Redshift Observations
- The Cosmological Parameters
- Large Scale Galaxy and Mass Distribution
- Quantum Cosmology
- Baryon and Dark Matter Content
- CMB Experiments and Statistics

Lecturers include

A Albrecht, R Bond, F Bouchet, A Doroshkevich, G Efstathiou, R Ellis, M Fukugita, A Guth, S Hawking, C Hogan, R Juskiewicz, N Kaiser*, E Kolb, T Kibble, O Lahav, A Lasenby, J Ostriker, L Page, J Peacock, M Rees, V Rubakov, P Shellard, J Silk*, A Starobinsky, A Szalay, P Steinhardt, M Turner, N Turok (* tentative).

Applications

To participate in the NATO ASI, please complete and return an application form and, for students and postdoctoral fellows, arrange for a letter of reference from a senior scientist. Limited financial support is available for participants from appropriate countries, and the usual guidelines for the NATO ASI series will be followed in the selection for participants.

The workshop will take place at the Newton Institute and accommodation for participants will be provided at Wolfson Court, adjacent to the Institute. The conference package costs £650, which includes registration fees, accommodation, breakfast and evening meals plus lunch and refreshments during the days that the workshop takes place.

Further information and application forms are available from the web site (http://www.newton.cam.ac.uk/programs/sfu.html) where information about the main programme can be found. Completed application forms should be sent to Heather Hughes at the above address, or via e-mail (h.hughes@newton.cam.ac.uk).

Closing Date for the receipt of applications is 31 March 1999.

LIST OF MEMBERS OF EDITORIAL ADVISORY BOARD, 1999

Below are the subject areas, names and addresses of the members of the joint Editorial Board of the Society's *Bulletin, Journal* and *Proceedings*. Currently, papers for these three periodicals should be submitted to the most appropriate member of the Board. However, the Society will shortly move to a centralised submissions system, details of which will be announced in the *Newsletter*.

There are separate Editorial Boards for the LMS Journal of Computation and Mathematics and for Nonlinearity.

Elementary and analytic theory of numbers

Professor R C Baker, Department of Mathematics, Brigham Young University, Provo, UT 84602-6539, USA

K-theory and noncommutative geometry

Dr J Brodzki, School of Mathematical Sciences, University of Exeter, North Park Road, Exeter EX4 4QE

Dynamical systems and complex dynamics

Dr S R Bullett, School of Mathematical Sciences, Queen Mary & Westfield College, Mile End Road, London E1 4NS

Algebraic number theory

Dr D Burns, Department of Mathematics, King's College, Strand, London WC2R 2LS

Differential geometry and global analysis

Dr F E Burstall, Department of Mathematical Sciences, University of Bath, Claverton Down, Bath BA2 7AY

Real harmonic analysis

Professor A P Carbery, Department of Mathematics, University of Edinburgh, Mayfield Road, Edinburgh EH9 3JZ

Representation theory and algebra

Dr W Crawley-Boevey, School of Mathematics, University of Leeds, Leeds LS2 9JT

Logic, nonstandard analysis, stochastic analysis

Professor N J Cutland, Department of Mathematics, University of Hull, Hull HU6 7RX

Algebra

Professor S Donkin, School of Mathematical Sciences, Queen Mary & Westfield College, Mile End Road, London E1 4NS

Combinatorics, geometry of Banach spaces

Professor W T Gowers, DPMMS, 16 Mill Lane, Cambridge CB2 1SB

Topology

Professor J P C Greenlees, School of Mathematics and Statistics, Hicks Building, University of Sheffield, Sheffield S3 7RH

Elementary and analytic number theory

Professor G Harman, School of Mathematics, University of Wales Cardiff, Senghennydd Road, Cardiff CF2 4YH

Group theory and topology

Professor J Howie, Department of Mathematics, Heriot-Watt University, Riccarton, Edinburgh EH14 4AS

Combinatorics and theoretical computer science

Professor C J Mitchell, Information Security Group, Royal Holloway, Egham Hill, Egham. Surrey TW20 0EX

Singularity theory, real algebraic geometry Dr D M Q Mond, Mathematics Institute, Warwick University, Coventry CV4 7AL

Low-dimensional topology

Dr H R Morton, Department of Mathematical Sciences, University of Liverpool, Liverpool L69 3BX

Algebraic geometry

Dr P E Newstead, Department of Mathematical Sciences, University of Liverpool, Liverpool L69 3BX

Probability and related areas of analysis

Dr J R Norris, Statistical Laboratory, 16 Mill Lane, Cambridge CB2 1SB

Real and complex analysis

Professor A G O'Farrell, Mathematics Department, National University of Ireland, Maynooth, Co. Kildare, Ireland

Functional analysis

Professor S C Power, Department of Mathematics and Statistics, Lancaster University, Lancaster LA1 4YF

Mathematical logic

Dr M Prest, Department of Mathematics, University of Manchester, Manchester M13 9PL

Group theory and representation theory

Professor G R Robinson, School of Mathematics, University of Birmingham, Edgbaston, Birmingham B15 2TT

Linear PDEs and spectral theory

Professor Y Safarov, Department of Mathematics, King's College London, Strand, London WC2R 2LS

Group theory and combinatorics

Dr J Saxl, DPMMS, 16 Mill Lane, Cambridge CB2 1SB

Nonlinear analysis and differential equations

Professor J R L Webb, Department of Mathematics, University of Glasgow, Glasgow G12 8QW

Mathematical physics

Dr N M J Woodhouse, Wadham College, Oxford OX1 3PN

E.C. Lance Publications Secretary

DEPARTMENTAL NEWS

awarded a 5-year Advanced Research Fellowship from the EPSRC. He will take it up at the Department of Applied Mathematics, from 1 February 1999. The

Leeds University Vadim Kuznetsov was research subject is the theory of Backlund transformations and discretisations for finite-dimensional integrable systems with applications to geometric integration and special functions.



EUROPEAN RESEARCH CONFERENCES

Co-sponsored by the European Science Foundation and the Euroconferences Activity of the European Union

GEOMETRY, ANALYSIS & MATHEMATICAL PHYSICS **Analysis & Geometry**

Obernai (near Strasbourg), France, 4-9 June 1999

Chairman: Jean-Michel Bismut (Orsay)

SPEAKERS WILL PROVISIONALLY INCLUDE:

- D. Auroux (Ecole Polytechnique)
- R. Dijkgraaf (Amsterdam)
- E. Giroux (Lyon)
- Y. Karshon (Jerusalem)
- G. Liu (UCLA)
- W. Nahm (Bonn)
- M. Schwarz (Stanford)
- K. Uhlenbeck (Austin)
- P. Biran (Stanford)
- R. Fintushel (Michigan)
- V. Giventhal (Berkeley)
- M. Kontsevitch (Bures/Yvette) S. Kuksin (Heriot-Watt)
- E. Meinrenken (Toronto)
 - L. Polterovich (Tel-Aviv)
 - P. Seidel (MPIM-Bonn)
 - S. T. Yau (Harvard)

- Y. Chekanov (Moscow)
- E. Getzler (Northwestern)
- L. Jeffrey (Toronto)
- T. Mrowka (MIT, Cambridge)
- Y. Ruan (Wisconsin)
- J.-C. Sikorav (Toulouse)

SCOPE OF THE CONFERENCE

The purpose of the meeting will be to review recent developments on:

- Symplectic geometry
- Contact geometry and Floer homology
- · Gromov-Witten invariants and mirror symmetry
- Donaldson and Seiberg-Witten invariants
- Symplectic analysis in infinite dimentions
- Moduli spaces

The conference is open to researchers world-wide, whether from industry or academia. Participation will be limited to 100. The emphasis will be on discussion about new developments. Poster sessions will be organised. The Registration Fee covers full board and lodging. Grants will be available for younger scientists, in particular those from less favoured regions in Europe.

Deadline for applications: 15 FEBRUARY 1999.

For information & application forms, contact the Head of the EURESCO Unit: Dr. Josip Hendekovic, European Science Foundation, 1 quai Lezay-Mamésia, 67080 Strasbourg Cedex, France. Tel.+33 3 88 76 71 35 Fax.+33 3 88 36 69 87 E-mail: euresco@esf.org on-line information and application on WWW at: http://www.esf.org/euresco



EUROPEAN RESEARCH CONFERENCES

Sponsored by the European Science Foundation

ALGEBRA & DISCRETE MATHEMATICS

Infinite Combinatorics & their Impact on Alaebra

Hattingen, Germany, 26 June - 2 July 1999

Chairman: Saharon Shelah (Jerusalem, Israel) Vice-Chairman: Rüdiger Göbel (Essen, Germany)

organised in association with the European Mathematical Society

SPEAKERS WILL PROVISIONALLY INCLUDE:

- B. Balcar (Prague) M. Droste (Dresden) P. Eklof (Irvine) W. Hodges (London) M. Kojman (Negev, Israel) P. Komjath (Budapest) M. C. Laskowski (Maryland)
- O. Spinas (Zürich)
- M. Ziegler (Freiburg)
- A. Blass (Michigan) M. Dugas (Waco, Texas)
- M. Goldstern (Vienna)

- C. Metelli (Napoli)
- S. Thomas (New York)
- J. Brendle (Kobe, Japan) M. Dzamonja (Norwich) R. Grossberg (Pittsburgh)
- E. Hrushovsky (IHES & Jerusalem) T. Hyttinen (Helsinki)
 - S. Koppelberg (Berlin)
 - D. Monk (Colorado)
 - B. Velickovic (Paris)

SCOPE OF THE CONFERENCE

The conference will focus on combinatorial methods and results in set theory and their application to algebra. It will emphasise recent advances in cardinal arithmetic and highlight the interplay between these aspects of set theory and various subfields of algebra. This interplay is particularly significant for commutative algebra and module theory.

Some recent exciting results will be developed explicitly by invited speakers who have research backgrounds in either logic or algebra. The central goal of the meeting in Hattingen will be to enhance this type of interaction between algebra and infinite combinatorics.

The conference is open to researchers world-wide, whether from industry or academia. Participation will be limited to 100. The emphasis will be on discussion about new developments. A poster session will be organised. The Registration Fee covers full board and lodging. A limited number of grants will be available upon request.

Deadline for applications: 1 MARCH 1999.

For information & application forms, contact the Head of the EURESCO Unit: Dr. Josip Hendekovic, European Science Foundation, 1 quai Lezay-Marnésia, 67080 Strasbourg Cedex, France. Tel.+33 3 88 76 71 35 Fax.+33 3 88 36 69 87 E-mail: euresco@esf.org on-line information and application on WWW at: http://www.esf.org/euresco



EUROPEAN RESEARCH CONFERENCES

Co-sponsored by the European Science Foundation and the Euroconferences Activity of the European Union

NUMBER THEORY & ARITHMETICAL GEOMETRY

ARAKELOV GEOMETRY & APPLICATIONS

Obernai (near Strasbourg), France, 25-30 June 1999

Chairman: Jean-Benoît Bost (Orsay) Vice-Chairman: U. Jannsen (Cologne)

organised in association with the European Mathematical Society

SPEAKERS WILL PROVISIONALLY INCLUDE

A. Abbes (Paris-Nord)

P. Cohen (Lille)

C. Gasbarri (Cologne)

J. Kramer (Berlin)

J.-H. Evertse (Leiden)

- D. Roessler (Bures-sur-Yvette)
- E. Ulimo (Orsay)
- J.-M. Bismut (Orsay) S. David (Paris) H. Gillet (Chicago) S.S. Kudla (Maryland) V. Maillot (Paris) L. Szpiro (Orsay) P. Vojta (Berkeley)
- J.I. Burgos (Barcelona) R. Ferretti (Zürich)
- K. Köhler (Bonn)
- K. Künnemann (Cologne)
- M. McQuillan (Oxford)
 - H. Tamvakis (Philadelphia)

SCOPE OF THE CONFERENCE

The conference will focus on:

- Foundational results in Arakelov geometry: hermitian geometry and analysis
 on complex manifolds; intersection theory and Riemann-Roch theorems;
- Applications to diophantine approximation;
- Arakelov geometry of abelian varieties and their moduli spaces.

The conference is open to researchers world-wide, whether from industry or academia. Participation will be limited to 100. The emphasis will be on discussion about new developments. A Poster session will be organised. The Registration Fee covers full board and lodging. Grants will be available for younger scientists, in particular those from less favoured regions in Europe.

Deadline for applications: 22 MARCH 1999.

For information & application forms, contact the Head of the EURESCO Unit: Dr. Josip Hendekovic, European Science Foundation, 1 quai Lezay-Marnésia, 67080 Strasbourg Cedex, France. Tel.+33 3 88 76 71 35 Fax.+33 3 88 36 69 87 E-mail: euresco@esf.org on-line information and application on WWW at: http://www.esf.org/euresco

LONDON MATHEMATICAL SOCIETY PUBLICATIONS PERSONNEL 1999

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> E C Lance Publications Secretary



A. WEIL Honorary Member 1959

DIARY

The diary lists Society meetings and other events publicized in the Newsletter. For further information, refer to the figure in brackets, which is a cross reference to the LMS Newsletter number.

FEBRUARY 1999

12 Edinburgh Mathematical Society Meeting, Edinburgh (263)12-13 Two-day LMS Meeting, Proof and Computation, University of Leeds

MARCH 1999

5 Geometric Measure Theory, Spitalfields Day, Isaac Newton Institute, Cambridge (267)

8 North British Functional Analysis Seminar, University of Newcastle (267)
12 Edinburgh Mathematical Society Meeting, Abertay (263)
22-25 Single Cells to Continua Workshop, ICMS Edinburgh (267)

29 - 1 Apr British Mathematical Colloquium, Southampton University (265)

APRIL 1999

6-8 British Topology Meeting, University of Wales Swansea (267)
6-9 LMS Invited Lectures - Professor A. Mielke, University of Bath (262)
6-10 Homological Algebra, EPSRC-LMS Short Course (266)
6-15 Analysis on Lie Groups and Partial Differential Equations ICMS Instructional Conference, Edinburgh (265)

12-15 British Applied Mathematics Colloquium 1999, Bath University (266)

MAY 1999

7 Edinburgh Mathematical Society Meeting, Stirling (263) 14-16 Belgian Mathematical Society and London Mathematical Society Joint Meeting, Université de Bruxelles (260)(261)

JUNE 1999

4 Edinburgh Mathematical Society Meeting, Aberdeen (263)18 LMS Meeting, Hardy Lecture, London

JULY 1999

5-9 International Congress of Industrial and Applied Mathematics (ICIAM 99), Edinburgh University (252)
12-16 British Combinatorial Conference, Kent University (254)
12-16 American Mathematical Society and Australian Mathematical Society Joint Meeting, University of Melbourne (260)
12-16 System Modelling and Optimization Conference, IFIP TC7, Cambridge (267)
26 – 6 Aug Integrable Systems Seminar, University of Montreal (267)

AUGUST 1999

22-29 Hall Algebras Summer School, Hesselberg, Germany (263)

APRIL 2000

17-20 British Mathematical Colloquium, Leeds University

JULY 2000

3-7 Functional Analysis Meeting, Technical University, Valencia, Spain (265)

10 - 14 3rd European Congress of Mathematics, Barcelona, Spain

17-22 International Congress of

Mathematical Physics, Imperial College, London (257)

APRIL 2001

9-12 British Mathematical Colloquium, Glasgow University

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

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The London Mathematical Society is registered with the Charity Commissioners.

Printed by Armstrong Press Ltd, Southampton 01703 333132