

THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 181

March 1991

FORTHCOMING SOCIETY MEETINGS

**Friday 15 March 1991, Burlington House
P.B. Kronheimer, G.B. Segal**

Friday, Saturday 17 - 18 May 1991, Oxford
Groups and Logic

Thursday 13 June 1991, Burlington House
F.C. Kirwan, H.B. Lawson

Friday 18 October 1991, Burlington House
Friday 15 November 1991, Burlington House

TWO-DAY MEETING

The May meeting of the Society will be held at the Mathematical Institute, University of Oxford on the afternoon of Friday 17 May and the morning of Saturday 18 May 1991. The topic of the meeting will be 'Groups and Logic'. The speakers and the titles of their talks are: A. Lubotzky, 'Discrete subgroups of Lie groups applied to Combinatorics and Computer Science'; A.V. Borovik, 'Interactions

between finite groups and groups of finite Morley rank'; R.I. Grigorchuk, 'Splitting homomorphisms and quadratic equations in groups'; E.I. Zel'manov, 'On the Burnside Problem'; J. Denev, 'On Igusa's local zeta function'. There will be a Society dinner on the Friday evening in Christ Church. Further details will appear in later issues of the Newsletter.

VISIT OF PROFESSOR R. SILHOL

Robert Silhol (Montpellier) will be visiting England for two weeks beginning from 22nd February. He will be giving talks at several London colleges, including King's College on Thursday 28th February and Queen Mary & Westfield College on Friday 1st March, and at the University of Warwick. Professor Silhol's work involves real algebraic curves and Teichmüller deformation spaces.

For further details, please contact W. Harvey (KCL) telephone 071-873 2828, e-mail udah055@uk.ac.kcl.oak or C. Series (Warwick) telephone 0203-523739.

The visit is being supported by a Scheme 2 travel grant from the London Mathematical Society.

ONE DAY COLLOQUIUM IN HONOUR OF DAME MARY CARTWRIGHT

A one day meeting will be held in Cambridge on 20th March 1991 to celebrate Dame Mary Cartwright's 90th birthday. There will be four one hour talks intended for a general mathematical audience. Professor James Lighthill, Professor Susan Friedlander and Dr Caroline Series will be three of the speakers. The meeting will be informal and everyone is welcome. Just turn up at the common room of the Department of Applied Mathe-

matics and Theoretical Physics in Mill Lane between 10.30am and 11.00am. Coffee and biscuits will be available here most of the day. The Department has ramps and lifts for wheel chairs. The time table is flexible, but it is intended to have lectures from 11 to 1 and 2 to 4. Lady Atiyah has kindly offered tea to all participants at 4.30 at Trinity.

The organisers thank the LMS for their financial support.

SCOTTISH ALGEBRA DAY

A one-day conference on Algebra will be held in the Mathematics Department, Glasgow University on Saturday 9th March 1991, supported by the London Mathematical Society. The speakers will be: M.P. Holland (Sheffield), M.F. Newman

(ANU), P. Schenzel (Halle) and F. Van Oystaeyen (Antwerp). For details contact K.A. Brown (Glasgow), J. Howie (Heriot-Watt), or T.H. Lenagan (Edinburgh).

LIST OF MEMBERS OF THE LMS EDITORIAL BOARD - 1991

Authors wishing to submit a paper for publication in the **Bulletin**, the **Journal** or the **Proceedings** should send two copies to the member of the Editorial Board whose mathematical interests are judged to be closest to its subject.

Professor R.C. Baker	Department of Mathematics, Royal Holloway & Bedford New College, Egham, Surrey TW20 0EX.	Elementary & Analytic Theory of Numbers.
Dr S. Brenner	Department of Applied Mathematics & Theoretical Physics, University of Liverpool, PO Box 147, Liverpool L69 3BX.	Algebras & Representation Theory.
Professor R. Brown	School of Mathematics & Computer Science, University College of North Wales, Bangor, Gwynedd LL57 1UT.	Topology.
Professor H.G. Dales	School of Mathematics, University of Leeds, Leeds LS2 9JT.	Functional Analysis
Professor S. Donkin	School of Mathematical Sciences, Queen Mary & Westfield College, Mile End Road, London E1 4NS.	Algebra.
Professor D.E. Edmunds	Mathematics Division, University of Sussex, Falmer, Brighton BN1 9QH.	Differential Equations & Related Areas of Analysis.
Dr K.J. Falconer	School of Mathematics, University of Bristol, University Walk, Bristol BS8 1TW.	Geometry & Convexity.
Dr C.M. Goldie	School of Mathematical Sciences, Queen Mary & Westfield College, Mile End Road, London E1 4NS.	Probability.
Dr R.G. Haydon	Brasenose College, Oxford OX1 4AJ.	Functional Analysis.
Dr D.R. Heath-Brown	Magdalen College, Oxford OX1 4AU.	Elementary & Analytic Number Theory.
Professor A.J.W. Hilton	Department of Mathematics, University of Reading, PO Box 220, Reading RG6 2AX.	Graph Theory & Combinatorics.
Professor N.J. Hitchin	Mathematics Institute, University of Warwick, Coventry CV4 7AL.	Differential Geometry & Global Analysis.
Professor W.A. Hodges	School of Mathematical Sciences, Queen Mary & Westfield College, Mile End Road, London E1 4NS.	Set Theory & Logic.
Professor J.R. Hubbuck	Department of Mathematics, University of Aberdeen, Dunbar Street, Aberdeen AB9 2TY.	Topology.
Dr M.W. Liebeck	Department of Mathematics, Imperial College, 180 Queen's Gate, London SW7 2BZ.	Group Theory & Combinatorics.
Professor N.G. Lloyd	Department of Mathematics, University College of Wales, Penglais, Aberystwyth, Dyfed SY23 3BZ.	Nonlinear Analysis & Differential Equations.
Professor T.J. Lyons	Department of Mathematics, University of Edinburgh, The King's Building, Mayfield Road, Edinburgh EH9 3JZ.	Analysis Probability & Potential Theory.
Dr P.E. Newstead	Department of Pure Mathematics, University of Liverpool, PO Box 147, Liverpool L69 3BX.	Algebraic Geometry.
Professor R.W.K. Odoni	Department of Mathematics, University of Glasgow, University Gardens, Glasgow G12 8QW.	Number Theory, & Representation Theory.
Dr A.M. Pitts	Computer Laboratory, New Museum Site, University of Cambridge, Pembroke Street, Cambridge CB2 3QG.	Logic & Theoretical Computer Science.
Dr S.J. Pride	Department of Mathematics, University of Glasgow, University Gardens, Glasgow G12 8QW.	Algebra.
Dr P.J. Rippon	Faculty of Mathematics, The Open University, Walton Hall, Milton Keynes MK7 6AA.	Potential Theory & Complex Analysis.
Professor J.T. Stafford	Department of Mathematics, University of Michigan, Ann Arbor, MI 48109-1003, U.S.A.	Ring Theory.
Professor J.B. Twomey	Department of Mathematics, University College, Cork, Ireland.	Complex Analysis & Fourier Analysis.
Professor C.T.C. Wall	Department of Pure Mathematics, University of Liverpool, PO Box 147, Liverpool L69 3BX.	Topology, Geometry, & Algebra.
Professor P. Walters	Mathematics Institute, University of Warwick, Coventry CV4 7AL.	Ergodic Theory & Dynamical Systems.

D.A. Brannan.
Publications Secretary

LONDON MATHEMATICAL SOCIETY

FRIDAY 15th MARCH 1991

P.B. Kronheimer (Oxford)

will speak at 3.30 on

Lie Groups, Instantons and
Platonic Solids

G.B. Segal (Cambridge)

will speak at 5.00 on

Two-dimensional Quantum
Field Theory

The meeting is at the
Geological Society
Burlington House, Piccadilly,
London W1

All interested are very welcome
Tea will be served at 4.30 p.m.

EUROPEAN MATHEMATICAL SOCIETY NEWS

Letter from the President of the European Mathematical Society

Dear Mathematicians in Europe,

November 1990

The European Mathematical Society (EMS) was established at a meeting held in Madralin (near Warsaw) on October 28, 1990. There the European Mathematical Council, an informal body with no statutes or authority, was transformed into the first Council of the EMS which elected the first Executive Committee of the EMS. Let us recall that the European Mathematical Council (EMC) came into existence at the International Congress of Mathematicians in Helsinki in 1978 by the tireless efforts of Michael Atiyah who then as a chairman of the EMC organized many meetings where the Statutes of the Society and its aims were discussed. All this culminated in the foundation of the EMS on October 28, 1990.

The Executive Committee will hold its first meeting in Oberwolfach on the weekend of January 19, 1991. Then the concrete work of the Society will begin. The general directions set up by the Council corresponding to the aims of the Society (see the Statement by the Publicity Officer Professor Wallace) have to be transformed into the first concrete actions which include:

1. Start of the work of the publication committee (immediately a Newsletter, possibly later a mathematical journal).
2. Active support of the Scientific Committee and the Organizing Committee of the planned European Congress (Paris 1992).
3. Establishment of ties to supra-national institutions, in particular the European Commission, to explore means of support for mathematics in Europe.
4. Exchange of mathematicians, in particular between East and West. Ways to support mathematics in Eastern Europe, and to discourage the brain drain from East to West.

For these items and many others the Society has to have a firm, active and wide base among European mathematicians. It needs the feeling that it is working on behalf of the whole European community of mathematicians. This can only be established by a strong individual membership. Sir Michael Atiyah is the first individual member. We want to have four thousand individual members very soon. Please join the European Mathematical Society. The conditions of individual membership are explained in the Statement by the Publicity Officer. Write to your Society and declare your individual membership of the EMS. Alternatively, you can write direct to the Secretary of the EMS, Professor C. Lance, School of Mathematics, University of Leeds, Leeds LS2 9JT, Great Britain (but note that individual members joining through a national mathematical society will pay a much lower subscription than others).

Make the European Mathematical Society strong by your individual membership. May the Society flourish by your support.

Sincerely yours,
Professor F. Hirzebruch

Statement from the Publicity Officer: Foundation of the European Mathematical Society.

On Sunday 28th October 1990 at Madralin, some 20 kilometres from Warsaw, under the hospitality of the Polish Academy of Sciences, there came into existence a new Society, the European Mathematical Society. This Society has been founded under an initiative of some 30 mathematical societies drawn from virtually every country of the European continent from the Atlantic Ocean to the Ural Mountains. The Society has been founded at a historic juncture in European affairs and, for legal purposes, has been established under Finnish law with its seat in Helsinki.

The aims of the Society, as given by Article 2 of its Statutes, include:

"The purpose of the Society is to promote the development of all aspects of mathematics in the countries of Europe, with particular emphasis on those which are best handled on an international level.

The Society will concentrate on those activities which transcend national frontiers and it will in no way seek to interfere with the national activities of the member societies.

In particular, the Society will, in the European context, aim to promote mathematical research (pure and applied), assist and advise on problems of mathematical education, concern itself with the broader relations of mathematics to society, foster the interaction between mathematicians of different countries, establish a sense of identity amongst European mathematicians, and represent the mathematical community in supra-national institutions."

Among the immediate active concerns being investigated is the possibility of a newsletter and of a mathematical journal.

Reflecting the manner in which the Society has been set up the membership rules are somewhat complicated. The original 30 or so founding mathematical societies are deemed to have joined as full members of the new Society; other societies are respectfully invited to join but full membership is restricted to those organisations primarily concerned with promoting research in pure or applied mathematics within Europe. A private individual, who makes a contribution to European mathematics, is cordially invited to become an individual member, either by joining the Society directly or by joining via membership of some society which itself is a full member. The significance of the difference in the mode of membership for a private individual is that by joining directly he or she will pay 280 Finnish marks annually whereas by joining via a society he or she will pay only 70 Finnish marks annually (one US dollar = 3.6 Finnish marks approximately). Individual members may expect to receive a 50% reduction on the registration fee for a major Congress which is planned for Paris in the early Summer of 1992. Provision, with appropriate fees, exists for associate members, these being societies such as teacher organisations with an interest in mathematics and for institutional members such as commercial organisations, industrial laboratories or academic institutions.

At its first meeting the fledgling Society elected the following as office-bearers and members of its Executive Committee.

President: F. Hirzebruch, Bonn, Germany. **Vice-Presidents:** Cz. Olech, Warsaw, Poland. A. Figa-Talamanca, Rome, Italy. **Secretary:** C. Lance, Leeds, United Kingdom. **Treasurer:** A. Lahtinen, Helsinki, Finland. **Members:** E. Bayer, Besancon, France. A. Kulner, Prague, Czechoslovakia, P.-L. Lions, Paris IX, France. L. Marki, Budapest, Hungary. A. St Aubyn, Lisbon, Portugal.

Long may the Society flourish!

Publicity Officer: Professor D.A.R. Wallace, Strathclyde, Glasgow, United Kingdom.

The Wellcome Trust

Mathematical Biology

Postdoctoral Research Fellowships & Research Training Studentships

The Wellcome Trustees announce a new scheme of support for individuals wishing to develop careers in research in the application of mathematics to biological and medical science. The Trustees are anxious to stimulate research in this subject, and in particular to promote the flow of well-trained research workers into the area.

Two forms of support are available:-

Postdoctoral Research Fellowships are open both to mathematicians and to biology graduates of British or Irish universities. Mathematicians completing a PhD degree would be supported to pursue independent postdoctoral studies applying their mathematical skills to a biological or medical problem. Scientists with a doctorate in a biological subject could be supported to develop their mathematical skills in relation to their biological interest, and to pursue research at this interface. Applicants for these Fellowships should note that the Trust's remit is primarily to support research in medicine, veterinary medicine, and the related basic biomedical sciences, and that these areas of biological science will take precedence.

Prospective Fellows should apply within four years of completion of the PhD degree. Fellowship support can be requested for any period between one and five years, and can include funding, where appropriate, to attend an MSc course on the subject, or to obtain experience at a suitable centre abroad, or both. Normally, candidates should have two sponsors, one from each of the biological and mathematical sciences, and applications should be made jointly with these supervisors whose laboratories or departments must be in the United Kingdom or Eire. The prospective Fellow will be expected to be primarily responsible for writing the application and capable of independently executing the research proposed.

The stipend and research expenses for these Fellowships will be at the Trust's usual Fellowship rate.

Research Training Studentships are available for graduates of British or Irish universities in any mathematical or biological subject, wishing to study for a PhD degree in the United Kingdom or Eire. Support will be available for a course lasting four years, to allow those with a mathematical training to study the biological background in the area of their PhD degree, and to allow biologists additional time to develop their mathematical skills. The subject of the doctoral research can be in any area of mathematical biology, although (as with the Fellowship scheme) medicine, veterinary medicine, and the related basic sciences will take precedence over other biological subjects.

Applications should be made jointly by the intended student and supervisor. The stipend and research expenses for these Studentships will be at the advantageous level offered to holders of Wellcome Prize Studentships.

Applications for both these forms of support will be considered in competition, and application forms are available from Miss S Carpenter, The Grants Section, The Wellcome Trust, 1 Park Square West, London NW1 4LJ. Tel: 071-486 4902 ext 273.

Completed applications must be returned no later than 19th April 1991, and late applications will not be considered. Decisions about applications in both schemes will be made by an expert panel convened for the purpose, and these decisions will be made no later than 28th June 1991. Short-listed candidates for Research Fellowships will be invited to the offices of the Trust for interview.

UK MATHEMATICAL COMPETITIONS

The list below, prepared by the Education Committee of the London Mathematical Society, is based on an informal survey conducted in 1990. It lists competitions in four different categories: quiz; take-home paper; timed paper; and projects. Where appropriate, the organising body and a contact individual are named. The geographical area and the pupil age-range are given, together with an indication of the numbers submitting solutions etc. Some additional details are also noted. We do not indicate in detail what was also clear from the survey; namely that almost all competitions listed have some (modest) sponsorship, and that certificates or small prizes are awarded.

Of course, this list is not claimed to be definitive. Any corrections or additions should be sent to Professor J.C. Robson, School of Mathematics, University of Leeds, Leeds LS2 9JT.

1. QUIZ

(SHEFFIELD) MATHEMATICAL CHALLENGE

Dr. R.J. Atkin, Dr. K. Austin: Department of Mathematics, University of Sheffield, Sheffield S3 7RH. **Area:** Sheffield **Age:** Secondary, up to 14 yrs **Size:** 20 Schools. (Three pupils per team, several rounds, final rounds have been on Radio Sheffield.)

HERTFORDSHIRE SCHOOLS MATHEMATICS QUIZ

Body: Hertfordshire Branch, Mathematical Association. Mr. A.W. Burdett, 18 St. Michaels Close, Harpenden, Herts AL5 1EW. **Area:** Hertfordshire **Age:** 11-18 years **Size:** up to 64 schools. (Four pupils per team, several rounds, grand final.)

NORTHEAST INTERSCHOOL QUIZ

Colin Dixon, Royal Grammar School, Eskdale Terrace, Newcastle upon Tyne NE 2 4DX.

HANS WOJDA QUIZ. Terry Heard, City of London School, London EC4V 3AL.

2. TAKE-HOME PAPER

(SCOTTISH) MATHEMATICAL CHALLENGE

Body: Scottish Mathematical Council. Dr. D. Monk, Department of Mathematics, University of Edinburgh, Edinburgh EH9 3JZ. **Area:** Scotland **Age:** 12-18 years **Size:** 2100 pupils. (4 papers per session 45 problems; juniors (12/13 years) separate; 4 local marking groups.)

MERSEYSIDE CHALLENGE

Body: Mathematical Education on Merseyside. Three separate competitions:

(1) Junior Challenge. Dr. P.J. Giblin, Department of Mathematics, University of Liverpool, Liverpool L69 3BX. **Area:** Merseyside **Age:** up to 13.5 years **Size:** 3000 pupils (Two papers each 6 questions; via Newsletter.)

(2) Senior Challenge. Dr. P. Gould, Department of Applied Mathematics, University of Liverpool, Liverpool L69 3BX. **Area:** Merseyside **Age:** up to 15.5 years **Size:** 600 pupils

(3) Open Challenge. **Area:** Merseyside **Age:** 5th & 6th Form

GENERAL ACCIDENT MATHEMATICAL CHALLENGE

Dr. M.G.J. van der Burg, Department of Mathematics, University York, York YO1 5DD. **Area:** York **Age:** 14+ years; 16+ years **Size:** 200 pupils. (Separate papers for the two age groups; over Christmas.)

CITY OF LONDON POLYTECHNIC MATHEMATICS COMPETITION

Dr. I.C. Brown, Department of Mathematics, City of London Polytechnic, 100 Minorities, London EC3N 1JY.

Area: Inner London **Age:** 4th form; Lower 6th **Size:** 500 pupils (ex. ILEA) schools. (Two separate competitions; each has 2 rounds; second round is timed paper; prize ceremony and lecture.)

BRITISH TELECOM LANCASHIRE SCHOOLS MATHEMATICS CHALLENGE

Mr. K. Burrell, Lancashire County Council, Department, PO Box 61, County Hall, Preston, Lancs. PR1 8RJ. **Area:** Lancashire **Age:** 1st year sec. **Size:** 7,000 pupils. (Paper enables selection of school representatives; district and then county finals.)

GREATER MANCHESTER MATHEMATICS CHALLENGE

Paul Andrews, Manchester Polytechnic, Centre for Mathematics Education, 799 Wilmslow Road, Didsbury, Manchester M20 8RR. **Area:** Gr. Manchester **Age:** 1st & 2nd year sec. **Size:** 20,000 pupils. (One round, investigative problem solving; then "Family Mathematical Evening" for 500 winners).

BUMMPS (Birmingham University Mid term Mathematical Puzzles). Dr. A. Gardiner, School of Mathematics & Statistics, University of Birmingham, Birmingham B15 2TT. **Area:** W. Midlands **Age:** Junior; up to school year 10 **Size:** 800 pupils Senior; open 250 pupils. (Aimed at wide ability range; encourages deviation, presentation, etc.)

SANDWELL SECONDARY MATHEMATICS OLYMPIAD

R.C. Butcher, Education Office, 402 High Street, West Bromwich, W. Midlands B70 9LT. **Area:** Sandwell **Age:** 11-18 years **Size:** 4,000 Round 1 100 Final. (3 take home papers and one timed paper in school; then timed final.)

3. TIMED PAPER

NATIONAL MATHEMATICS COMPETITION

Body: National Committee for Mathematical Contests. (Committee of the Mathematical Association). **Area:** UK **Age:** 5th & 6th forms **Size:** 17,000 pupils. (Multiple-choice paper, marked in school.)

BRITISH MATHEMATICAL OLYMPIAD

Body: British Mathematical Olympiad Committee. (Organisation currently under discussion.). **Area:** UK **Age:** 5th & 6th form **Size:** 500 pupils. (Top pupils from National Mathematics Competition.)

U.K. SCHOOLS MATHEMATICS CHALLENGE

Dr. A. Gardiner, School of Mathematics & Statistics, University of Birmingham, B15 2TT. **Area:** UK **Age:** up to school year 9 **Size:** 60,000 pupils. (Non standard problems, 30%-40% ability range, machine marked)

U.K. JUNIOR MATHEMATICAL OLYMPIAD

Dr. A. Gardiner, School of Mathematics & Statistics, University of Birmingham, B15 2TT. **Area:** UK **Age:** up to school year 9 **Size:** 800 pupils. (Best pupils from UK Schools Mathematical Challenge.)

WELSH MATHEMATICS COMPETITION

Body: Welsh Scientific Society. Dr. H.G.F. Roberts, Y Coleg Normal, Bangor, Gwynedd, LL57 2PX. **Area:** Wales **Age:** 12, 14, 17 yrs. **Size:** 2,500 pupils. (Older groups have open questions and collaborative solutions; in Welsh.)

4. PROJECTS

NORWICH UNION MATHEMATICAL CHALLENGE

Ron Allpress, Wickham Road, Thwaite IP23 7EE. **Area:** UK **Age:** School Yr9 & Yr12 **Size:** 250 schools. (Two separate competitions; each school has about 4 teams of 5 pupils.)

(SCOTTISH) MATHEMATICS PROJECT COMPETITION

Body: Scottish Mathematical Council (and Scottish Branch IMA), Dr. T.A. Whitelaw, Department of Mathematics, University of Glasgow. **Area:** Scotland **Age:** Primary; Secondary **Size:** 32 schools. (Two separate competitions.)

YORKSHIRE TELEVISION MATHEMATICS COMPETITION

Three separate competitions. (1) Mr D.C. Carter, CSSME, School of Education, University of Leeds, Leeds LS2 9JT. **Area:** N & W Yorks. **Age:** 9-13 years **Size:** 75 pupils. (Two rounds) (2) Mr T. Roper, CSSME, School of Education, University of Leeds, Leeds LS2 9JT. **Area:** N & W Yorks. **Age:** 13-16 years **Size:** 50 pupils. (Two rounds.) (3) Dr A. West, School of Mathematics, University of Leeds, Leeds LS2 9JT. **Area:** N & W Yorks. **Age:** 6th form **Size:** 12 schools (44 pupils). (Team projects, open-ended; presentation important.)

LOGIC AND ALGEBRA OF SPECIFICATION

An international summer school on Logic and Algebra of Specification will be held in Marktobendorf, Germany from 23rd July to 4th August 1991. The topics will include Specification and Automated Deduction; Proving Techniques; Concurrency and Logic; Abstract Data Types and Operational Semantics; Constructive Methods; Action Semantics. The lecturers are W. Brauer (Germany), R. Constable (U.S.A.), J-Y. Girard (France), G. Jäger (Switzerland), Z. Manna (Israel/U.S.A.), R. Milner (U.K.), P.D. Mosses

(Denmark), H. Schwichtenberg (Germany), J.V. Tucker (U.K.), S.S. Wainer (U.K.) and M. Wirsing (Germany).

For further information contact Institut für Informatik, Technische Universität München, Summer School 91, Orleansstr.34, 8000 München 80, Germany. Telephone (89) 48095 209, fax (89) 48095 203, telex +5 22854 tumue d. The deadline for application is 3rd April, 1991.

UNIVERSITY COLLEGE OF SWANSEA

Senior Research Assistants

Applications are invited for the vacancies of Senior Research Assistant supported by the Science and Engineering Research Council, in the Department of Mathematics and Computer Science, to work with Professor D E Evans on Operator Algebras, their applications and connections with areas such as mathematical physics (statistical mechanics and quantum field theory), topology and geometry (K-theory, index theory, foliations, differentiable structures, braids, links) or topological dynamics. Applicants should possess a PhD in mathematics or expect to receive such a degree soon.

The appointments will commence on 1st October 1991 and will be on a scale up to £13,495 per annum, together with USS benefits and will be for up to 21 months.

Further particulars and application forms (2 copies) may be obtained from the Personnel Office, University College of Swansea, Singleton Park, Swansea, SA2 8PP, to which office they should be returned by **Monday 11th March 1991.**

Mathematics from

Microcomputers and Mathematics

J. W. BRUCE, P. J. GIBLIN and P. J. RIPPON

This important new textbook shows how to do significant and interesting mathematics with the help of a microcomputer. Each topic is self-contained and is supported by numerous exercises and projects which make the book suitable for private study as well as for courses on a wide range of subjects. The programs are written in 'basic BASIC' which any microcomputer will understand.

£52.50 net HB 0 521 37515 0 448 pp.
£17.50 net PB 0 521 31238 8
1990

A Tribute to Paul Erdős

Edited by A. BAKER, B. BOLLOBÁS and A. HAJNAL

Eminent mathematicians from around the world have contributed articles to this volume that reflect the diversity of Erdős' interests. It will be a source of inspiration for number theorists, combinatorialists, set theorists and analysts. A feature of this volume is a collection of some 50 of Erdős' outstanding unsolved problems, together with their 'value'!

£55.00 net HB 0 521 38101 0 493 pp.
1990

Integral Equations and Applications

C. CORDUNEANU

The purpose of this book is threefold: to be used for graduate courses on integral equations; to be a reference for researchers; and to describe methods of application of the theory. The author emphasises the role of Volterra equations as a unifying tool in the study of functional equations. Applications are considered from a broad range of areas and used to motivate the mathematical discussion.

£45.00 net HB 0 521 34050 2 416 pp.
1991

Integral Equations

A Practical Treatment, from Spectral Theory to Applications

DAVID PORTER and DAVID S. G. STIRLING

This textbook tackles the solution of integral equations using a blend of abstract 'structural' results and more direct, down-to-earth mathematics. This approach enables a thorough account to be given of many of the types of integral equation which arise in application areas.

£45.00 net HB 0 521 33151 X 384 pp.
£15.00 net PB 0 521 33742 9
1991

Cambridge Texts in Applied Mathematics

from Cambridge

Probability with Martingales

DAVID WILLIAMS

This new textbook is a modern, lively and rigorous account which has Doob's theory of martingales in discrete time as its main theme.

A distinguishing feature is its determination to keep the probability flowing at a nice tempo. It achieves this by being selective rather than encyclopaedic, presenting only what is essential to understand the fundamentals and incorporating interesting and challenging problems, some with hints.

£30.00 net HB 0 521 40455 X 272 pp.

£10.95 net PB 0 521 40605 6

1991

Cambridge Mathematical Textbooks

Linear Analysis

An Introductory Course

BÉLA BOLLOBÁS

This brisk introduction presents results of application in contemporary mathematics and shows the relevance of functional analysis to other areas.

Unusual topics covered include geometry of finite-dimensional spaces, invariant subspaces, fixed-point theorems, and the Bishop-Phelps theorem. An outstanding feature of this text is the exercise sets, which though never routine, run from elementary to challenging.

£35.00 net HB 0 521 38301 3 252 pp.

£11.95 net PB 0 521 38729 9

1990

Cambridge Mathematical Textbooks

For further information on Cambridge Mathematics publications please complete this coupon and send to Susan Chadwick at the address below

Please send the following subject catalogues:

Pure Mathematics Applied Mathematics Nonlinear Science

Name

Address

.....

..... Postcode



Cambridge University Press

The Edinburgh Building, Cambridge CB2 2RU, UK.

RECENT LMS PUBLICATIONS

Oligomorphic Permutation Groups by P.J. Cameron. pp 168. ISBN 0 521 38836 8. LMS Lecture Note Series 152. £14.95 LMS members price £11.20

The study of permutation groups has always been closely associated with that of highly symmetric structures. The objects considered here are countably infinite, but have only finitely many different substructures of any given finite size. They are precisely those structures which are determined by first-order logical axioms together with the assumption of countability. This book concerns such structures, their substructures and their automorphism groups. A wide range of techniques are used: logic, group theory, combinatorics, Baire category and measure among them. The book arose from lectures given at a research symposium and retains their informal style, whilst including as well many recent results from a variety of sources. It concludes with exercises and unsolved research problems.

Number Theory and Cryptography edited by J.H. Loxton. pp 247. ISBN 0 521 39877 0. LMS Lecture Note Series 154. £17.50 LMS members' price £13.10

In this volume are included papers presented at two meetings: one a workshop on Number Theory and Cryptography, and the other, the annual meeting of the Australian Mathematical Society. Questions in number theory have become of military and commercial importance for the security of communication, as they are related to codes and codebreaking. Papers in this volume range from problems in pure mathematics whose study has been intensified by this connection, through interesting theoretical and combinatorial problems which arise in the implementation, to practical questions from banking and telecommunications.

The contributors are some of the leading figures in the field. The whole volume will be an attractive

purchase for all number theorists, 'pure' or 'applied', and those computer scientists working in cryptography.

Classification Theory of Polarized Varieties by T. Fujita. pp 224. ISBN 0 521 39302 0. LMS Lecture Note Series 155. £17.50 LMS members' price £13.10

A polarized variety is a modern generalization of the notion of a variety in classical algebraic geometry. It consists of a pair: the algebraic variety itself, and an ample line bundle on it. Using techniques from abstract algebraic geometry that have been developed over recent decades, Professor Fujita develops classification theories of such pairs using invariants that are polarized higher-dimensional versions of the genus of algebraic curves.

The heart of the book is the theory of ρ -genus and sectional genus developed by the author, but numerous related topics are discussed or surveyed. Proofs are given in full in the central part of the development but background and technical results are sometimes just sketched when the details are not essential for understanding the key ideas.

Readers are assumed to have some background in algebraic geometry, including sheaf cohomology, and for them this work will provide an illustration of the power of modern abstract techniques applied to concrete geometric problems. Thus the book helps the reader not only to understand about classical objects but also modern methods, and so it will be useful not only for experts but also non-specialists and graduate students.

These books have recently been published and are available from Cambridge University Press, Customer Services, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU. Payment should be sent with your order, quoting account no. 089 4900 001.

POPULAR LECTURE VIDEOS

Members may recall that the Society has a collection of videos of the lectures given in the "London Mathematical Society Popular Lectures" series. The lectures concerned are as follows:

- Bailey, R.A. *Designing experiments with allowance for interfering neighbours.*
Berry M. *Chaology.*
Brown, R. *How mathematics get into knots.*
Giblin, P.J. *Geometry and computers.*
Hodges, W.A. *Games that solve problems.*
Kendall, D.G. *How should a mathematician think about shape?*

- Ledermann, W. *The rise and fall of matrices.*
Piper, F.C. *Codes and ciphers.*
Maynard Smith, J. *Games animals play.*
Zeeman, E.C. *Geometry and perspective.*
· available shortly.

The video collection has recently moved to Leeds. Henceforth all requests and queries about the loan or purchase of these videos should be addressed to: London Mathematical Society Videos, School of Mathematics, University of Leeds, Leeds LS2 9JT.

USING MATLAB TO TEACH MATHEMATICS

There will be a workshop on the subject of using MATLAB to teach mathematics on Tuesday 19th March 1991 at the University of Birmingham. Registration and coffee will be on the ground floor foyer of the Faculty of Education, and the morning

session will take place in Lecture Theatre G33 on the same floor. The afternoon session will take place in Room 524. The distributors of MATLAB will attend to provide information about educational and quantity discounts for the package.

UNIVERSITY OF CAMBRIDGE
FACULTY OF MATHEMATICS
University Lectureship in Mathematics

Applications are invited for this lectureship, which has been established from 1st October 1991 as a joint post in the Department of Pure Mathematics and Mathematical Statistics and the Department of Applied Mathematics and Theoretical Physics. Applicants should work in Geometry and/or the geometrical aspects of Theoretical Physics.

Salary will be age-related on the scale for University Lecturers (£15,444 - £23,819 p.a.).

Further particulars may be obtained from Dr V. Chamberlain, Faculty Office, DPMMS, 16 Mill Lane, Cambridge CB2 1SB, to whom applications (including curriculum vitae, publications list and names of not more than three referees) should be sent so as to arrive no later than **April 15th 1991**.

Senior Lecturer
or
Reader in Pure
Mathematics

UEA
NORWICH

Applications are invited for the post of Senior Lecturer or Reader in Pure Mathematics in the School of Mathematics, tenable from 1st September 1991 or as soon as possible thereafter. The initial salary will be at an appropriate point on the Senior Lecturer or Reader scale £23,423 to £26,471 per annum plus USS benefits. The University is seeking to appoint a person with a strong research record in an area of Pure Mathematics which will complement the School's present strengths in algebra, geometry and number theory.

Applications (three copies), giving full particulars of age, qualifications and experience, together with the names and addresses of three persons to whom reference may be made, should be lodged with the Administrative Secretary, University of East Anglia, Norwich NR4 7TJ (telephone 0603 592734) from whom further particulars may be obtained quoting ref MAP 91/01, not later than **27th March 1991**. No forms of applications are issued.

UEA IS AN EQUAL OPPORTUNITIES EMPLOYER

PREVIOUS BRITISH MATHEMATICAL COLLOQUIA

Several members have suggested that it would be of interest to publish the list which follows of dates and venues of British Mathematical Colloquia

Place	Year	Place	Year
1 Manchester	1949	22 York	1970
2 Oxford	1950	23 Kent	1971
3 Bristol	1951	24 Glasgow	1972
4 Greenwich	1952	25 Manchester	1973
5 Durham	1953	26 Sussex	1974
6 Cambridge	1954	27 Newcastle	1975
7 Exeter	1955	28 Aberystwyth	1976
8 St Andrews	1956	29 Edinburgh	1977
9 Nottingham	1957	30 Lancaster	1978
10 Reading	1958	31 London (University College)	1979
11 Cardiff	1959	32 Sheffield	1980
12 London (Royal Holloway)	1960	33 Oxford	1981
13 Liverpool	1961	34 Bangor	1982
14 Southampton	1962	35 Aberdeen	1983
15 Shrivvenham	1963	36 Bristol	1984
16 Leicester	1964	37 Cambridge	1985
17 Dundee	1965	38 Hull	1986
18 London (Imperial)	1966	39 St Andrews	1987
19 Swansea	1967	40 Exeter	1988
20 Leeds	1968	41 Nottingham	1989
21 Birmingham	1969	42 East Anglia	1990.

ONE-DAY CONFERENCE IN STATISTICAL MECHANICS STATMECH-7

This one-day conference, to be held at King's College London, will be similar in format to previous meetings of the series and will consist of short contributed talks of about 20 minutes duration, together with lectures by invited speakers. There is no charge for this meeting. The deadline

for those wishing to contribute a talk is 15 April. Title only required.

For further details contact: D.A. Lavis, Department of Mathematics, King's College, Strand, London WC2R 2LS. Telephone 071-873 2240/2217, e-mail: maths@uk.ac.kcl.cc.oak.

B.C.S. - F.A.C.S. B TUTORIAL.

The Formal Aspects of Computing Science Special Interest Group of the British Computer Society are holding a B Tutorial from 15th to 17th April 1991. This will be held at the Post Experience Vocational Education (PEVE) Unit Department of Computer Science, Manchester University. B is a software system designed to assist people in con-

structing formal proofs.

For further information write to: Mrs. Joanna Knight, Performance Technology Unit, Lloyd's Register of Shipping, Lloyd's Register House, 29 Wellesley Road, Croydon CR0 2AJ. Telephone 081 681 4040 ext: 4610

EDUCATION COMMITTEE GRANTS

At the Society's Education Committee meetings on 26th September 1990 and 3rd January 1991 grants were made of £500 per year for two years to the University of Hull Saturday workshops for 1990/91 and 1991/92, and £500 to the University of Warwick pre-university mathematics course for sixth-form girls in April 1991. The Education Committee has also supported the University Mathematics Teaching Conference in July 1990 and the

British Congress of Mathematics Education in July 1991.

Applications for grants, which are particularly intended to support joint activities between mathematics departments of higher education institutions and schools, should be sent to the Secretary of the committee, Dr T. Porter, School of Mathematics, University College of North Wales, Bangor, Gwynedd LL67 1UT.

NEW FROM OXFORD

Connections, Definite Forms, and Four-Manifolds

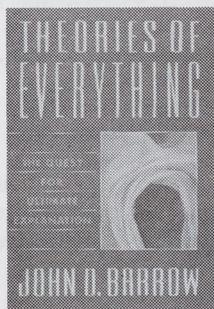
TED PETRIE and JOHN RANDALL

The central theme of this book is the study of the relationship between the geometry and topology of four-manifolds. The authors adopt a topologists' perspective and present a lucid introduction to moduli space techniques, and then apply them to four-manifolds.

Oxford Mathematical Monographs

0 19 853599 6, 144 pp., Clarendon Press, January 1991

£20.00



Theories of Everything

The Quest for Ultimate Explanation

JOHN D. BARROW

Many scientists now believe that we are close to discovering a 'Theory of Everything', a formula which will contain all that can be known about the universe. In this fascinating and very readable book, John Barrow asks whether this Theory of Everything is within our grasp, and whether it can really tell us Everything.

0 19 853928 2, 240 pp., illus., Clarendon Press,
April 1991

£14.95

The Computational Complexity of Differential and Integral Equations

An Information-based Approach

A. G. WERSCHULZ

In this text the author develops the theory of the complexity of the solution to differential and integral equations and discusses the relationship between the worst-case setting and two related problems: the average-case setting and the probabilistic setting.

Oxford Mathematical Monographs

0 19 853589 9, 350 pp., illus., April 1991

£35.00

Graph Decompositions

A Study in Infinite Graph Theory

REINHARD DIESTEL

This, the first ever book on a topic that belongs mainly to infinite graph theory, offers a complete account of the theory of simplicial decompositions of graphs, from its origins in the 1950s up to the very latest research. The text includes discussions of examples, proof strategies and numerous exercises.

0 19 853210 5, 242 pp., illus., Clarendon Press, September 1990

£25.00

OXFORD UNIVERSITY PRESS



George Neville Watson (1886-1965) was educated in London and at Trinity College Cambridge, graduating as Senior Wrangler in 1907. Smith's Prizeman in 1908, he became a fellow of Trinity in 1910. From 1918 to 1951 he was Professor at Birmingham. A former pupil of Whittaker's, he collaborated with him producing the second edition of 'Whittaker and Watson' in 1915, and the first edition of the book on Bessel functions in 1922. Later he worked on elucidating Ramanujan's notebooks. He was a tireless calculator who found numerical work on his Brunsviga calculating machine relaxing. He was elected a Fellow of the Royal Society in 1919 and awarded the Sylvester Medal in 1946. He received the London Mathematical Society's De Morgan Medal in 1947 and was the Society's 36th President, from 1933-1935.

DIARY

The diary lists Society meetings and other events publicised in previous issues of the Newsletter. For further information, refer to the figure in brackets, which is a cross reference to the LMS Newsletter Number.

1991

MARCH

- 15 LMS Meeting, London
15 Edinburgh Mathematical Society Meeting, Dundee (176)
19-28 Geometry and Physics Conference, Edinburgh (180)
20 One Day Colloquium in Honour of Dame Mary Cartwright, Cambridge (180)
22 Walter Ledermann's 80th Birthday Meeting, Sussex (180)
25-29 British Mathematical Colloquium, Bath (176)(177)(178)(180)

APRIL

- 8-12 Stochastic Analysis and Related Topics, Warwick (179)
9-12 British Applied Mathematics Colloquium, Oxford (177)
15-19 J.E. Marsden, LMS Invited Lectures, Southampton (177)(180)
23-26 Mathematical and Numerical Aspects of Wave Propagation Phenomena, France (172)

MAY

- 3 Edinburgh Mathematical Society Meeting, Stirling (176)
7-14 Number Theory Workshop, Singapore (177)
9 Schrodinger Lecture, London (178)
17-18 2-day LMS Meeting, Oxford
27-29 Computing and Information Conference, Canada (177)

JUNE

- 1 Edinburgh Mathematical Society Meeting, St Andrews (176)
9-14 Fixed Point Theory and Applications Conference, Canada (177)
13 LMS Meeting, London
17 London Mathematical Society Popular Lectures, Sheffield
23-30 Category Theory Meeting, Canada (179)
28 London Mathematical Society Popular Lectures, Imperial College, London
29-8 Jul Probabilistic Methods in Combinatorics, Durham (178)

JULY

- 1-5 The Mathematics of Nonlinear Systems, Bath (168)(175)(177)
1-19 Geometric Group Theory Symposium, Sussex (179)
7-12 Gregynog Symposium on Differential Equations, Gregynog (176)
8-12 British Combinatorial Conference, Surrey (165)(180)
8-12 Australian Mathematical Society Annual Conference, Australia (177)
8-14 Radicals, Hungary (172)
9-19 Conformal Field Theory, Durham (178)
13-16 British Congress of Mathematics Education, Loughborough (170)
20-30 Application of Categories in Computer Science, Durham (178)
22-26 Computational and Applied Mathematics Congress, Ireland (167)(180)
29-9 Aug Algebras and Orders, Canada (179)

AUGUST

- 18-24 Number Theory Association Conference, Canada (177)

SEPTEMBER

- 16-20 Minimal Models, Lie Groups and Differential Geometry, Spain (179)
25-27 Numerical Methods in Fluid Mechanics, Switzerland (174)
27-28 Symposium on Arithmetic in Honour of Bryan Birch, Oxford (178)

OCTOBER

- 18 LMS Meeting, London

NOVEMBER

- 15 LMS Meeting, London

DECEMBER

- 9-13 European Women in Mathematics, France (180)

The Newsletter is published monthly except in August. Items and advertisements for inclusion in the Newsletter should be sent to the Editor, Susan Oakes, London Mathematical Society, Burlington House, Piccadilly, London W1V 0NL, to arrive before the first day of the month prior to publication. Telephone 071- 437 5377, Fax 071-439 4629, E-mail lms@uk.ac.kcl.cc.oak.
