THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 229 **July 1995**

FORTHCOMING SOCIETY MEETINGS

Friday-Saturday 20-21 October 1995,
Scientific Societies' Lecture Theatre
Stochastic Analysis
D. Bakry, E. Bolthausen, L. Gross, J.F. LeGall, D. Nualart, H.T. Yau,
Friday 17 November 1995, Burlington House
I. Ekeland, J.M. Ball
Friday-Saturday 16-17 February 1996, Bath University
Differential Equations

LMS COUNCIL DIARY

Council met on Friday 19 May 1995. Relations with EPSRC stay high on the agenda. Possibly because of past problems in other disciplines, EPSRC is still unwilling to allow any revival of the old SERC Mathematics Committee. So the learned and professional societies in the area of mathematics have a duty to keep an eye on the funding of mathematical research, and to make sure that EPSRC knows their views.

For example we don't see any sense in a proposal to drop the 'pool' system and give each mathematics department a quota of research students in proportion to its total research grants, and we agreed to tell EPSRC so. Also we were not convinced that the higher committees of EPSRC, with their new emphasis on 'Users' and 'Technical Opportunities', fully appreciate the need to maintain the number of UK research mathematicians. This is a case we shall have to keep pressing, if need be with new arguments.

Among various financial matters, we agreed to contribute £3000 to a Royal Society fund to support mathematics teachers attending the Eighth International Congress on Mathematics Education. We heard a report on progress towards setting up a MathFIT (Mathematics for Information Technology) programme with workshops and summer schools; this is planned as a successor to the SERC Logic for Information Technology initiative.

The Society keeps a photographic archive of mathematicians - as witness the photographs in this Newsletter in recent years. So we were delighted to hear that the Society has received a large number of photographs of the late A.N. Kolmogorov, who was an Honorary Member of the Society. One member of the Society has already made good use of some of these photographs in an inaugural lecture.

Wilfrid Hodges

LMS 1995 PRIZES

The De Morgan Medal is awarded to Professor W.K. Hayman, FRS, of the University of York in recognition of his deep contributions to classical complex analysis.

The Senior Whitehead Prize is awarded to Professor C.J. Bushnell of King's College London for his work on representation theory and the Langlands programme.

The Junior Berwick Prize is awarded to Dr J.P.C. Greenlees of the University of Sheffield for his paper 'The geometric equivariant Segal conjecture for toral groups', J. London Math. Soc. (2) 48 (1993) 348-364.

Junior Whitehead Prizes are awarded to Dr W.T. Gowers of University College London for his work in the application of combinatorics to Banach space theory, and to Dr J. Rickard of the University of Bristol for his work in modular representation theory.

N.J. Hitchin, President
R.Y. Sharp, Council and General Secretary

LMS MEETINGS AND MEMBERSHIP SECRETARY

Dr D.J. Collins has accepted an invitation to be Head of the School of Mathematical Sciences at Queen Mary and Westfield College, and, consequently, feels unable to continue as LMS Meetings and Membership Secretary beyond the Annual General Meeting in November 1995. LMS Council is very sad to lose Dr Collins' services, and feels that the Society's loss is the College's gain: Dr Collins has not only been a very efficient LMS Officer, but has also shown imagination and vision in implementing Council's decisions about new LMS schemes for the support of mathematics.

As members will note from the item entitled 'Nominations for Council' elsewhere in this Newsletter, Council has nominated Dr D.J.H. Garling for election as Meetings and Membership Secretary in November 1995: Council is very pleased that Dr Garling is willing to take on this major role for the Society.

N.J. Hitchin, President
R.Y. Sharp, Council and General Secretary

NOMINATIONS FOR COUNCIL

Members of the Society are reminded that nominations of members for election to the Council may be made by writing to the Council and General Secretary (Professor R.Y. Sharp, Pure Mathematics Section, School of Mathematics and Statistics, University of Sheffield, Hicks Building, Sheffield S3 7RH). Such nominations must arrive before noon on 1 September 1995, must be made in accordance with the Charter, Statutes and By-Laws of the Society, must state the Office or term of Membership-at-Large to which nomination is made, and must be signed by the member nominated, by the nominator and by a seconder who is also a member of the Society. The sample nomination form at the foot of this notice, which could be photocopied or imitated, may help members of the Society.

All valid nominations received are added to those made by the Council, and circulated to the Society on a Ballot Paper which is used for the Council Elections at the Annual General Meeting in November. **It should be noted that Council will make just enough nominations to fill the expected vacancies, so that, if this notice leads to no additional nomination, then the 1995 Council Elections will be essentially a formality.**

Council's decisions about its nominations are indicated in the following list.

COUNCIL'S NOMINATIONS FOR THE 1995 ELECTIONS

OFFICERS (one-year terms)

President
N.J. Hitchin

Vice-Presidents
W.A. Hodges
E.G. Rees

Treasurer
A.O. Morris

Council and General Secretary
R.Y. Sharp

Meetings and Membership Secretary
*D.J.H. Garling

Publications Secretary
D.A. Brannan

Librarian
J.A. Erdos

MEMBERS-AT-LARGE (two-year terms)
K.A. Brown
P.T. Saunders

MEMBERS-AT-LARGE (one-year terms)
*J.M. Ball
U. Martin
J.C. Robson
M.J. Taylor

Notes.
(i) Members are reminded that U. Martin is Chair of the Society's Computer Science Committee and J.C. Robson is Chair of the Society's Education Committee.
(ii) The persons whose names are marked with an asterisk are not on the retiring Council.
(iii) Members should note that the following six Members-at-Large of Council elected for two-year terms in November 1994 will have one remaining year to serve: R.A. Bailey, A.R. Camina, A.D. Gardiner, J.D.S. Jones, J.F. Toland, C.T.C. Wall.

R.Y. Sharp
Council and General Secretary

We, the undersigned members of the London Mathematical Society, nominate

(block letters) .....
for election as (delete as applicable) Member-at-Large of Council (one- year/two-year term)/Officer

(insert Office for which nominated) .....

in the 1995 Council Elections of the Society.

Nominator's signature and printed name .....

Seconder's signature and printed name .....

I confirm that I am willing to stand for election as indicated above.

Nominee's signature .....

ISAAC NEWTON INSTITUTE

The 6-month research programmes at the Isaac Newton Research Institute for Mathematical Sciences, Cambridge, for the period July to December 1995 will be on *Semantics of Computation* and *From Finite to Infinite Dimensional Dynamical Systems.*

The general aims of the programme *Semantics of Computation* are twofold. First, to refine the current framework for the semantics of computation so that it is capable of dealing with the more subtle computational features present in the programming languages of today and tomorrow. Secondly, to provide a framework for interaction between such fundamental research and the issues confronted by language designers and software engineers. A number of workshops will be associated with the research programme. Enquiries about the programme should be addressed to Andrew Pitts, University of Cambridge Computer Laboratory, Pembroke Street, Cambridge CB2 3QG; tel: 1223 334629; fax: 1223 334678; e-mail: Andrew.Pitts@cl.cam.ac.uk. Additionally the following conferences will take place, August 6 - 12, as a joint meeting at the Newton Institute: 6th biennial conference on *Category Theory and Computer Science* (CTCS) and a *Summer Meeting on Category Theory*. For further details concerning CTCS contact David Pitt, Department of Mathematics, University of Surrey, Guildford, Surrey GU2 5XH (e-mail: d.pitt@mcs.surrey.ac.uk). For further details of the Summer Category meeting, contact Peter Johnstone, DPMMS, 16 Mill Lane, Cambridge CB2 1SB (e-mail: P.T.Johnstone@pmms.cam.ac.uk).

The programme *From Finite to Infinite Dimensional Dynamical systems* will bring together experts in both finite and infinite dimensional systems, and aims to make progress in such areas as spatio-temporal chaos, pattern formation, attractors in infinite dimensional systems, and other problems where experimental and numerical results suggest that both theories play an important role. There will be regular seminars throughout the programme, and a series of workshops of various lengths on special topics. There will be two main meetings: a NATO Advanced Study Institute (21 August - 1 September) and a Euro-conference (4 - 15 September). Enquiries related to this programme should be addressed to Colin Sparrow, Newton Institute, 20 Clarkson Road, Cambridge CB3 OEH; tel: 1223 330556: fax: 1223 330508; e-mail: c.sparrow:@newton.cam ac.uk.

Information about the Newton Institute and the programmes running there is available electronically via ftp, gopher, and the www. These services are currently being improved and developed. To use ftp login as ftp using your e-mail address as a password. Change directory to pub with cd pub for most useful files and instructions. Addresses are: ftp.newton.cam.ac.uk;gopher.newton.cam.ac.uk; http://www.newton.cam.ac.uk. Alternatively, information may be obtained from The Deputy Director, Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH; tel: 1223 335999; fax: 1223 330508: e-mail: i.newton@newton.cam.ac.uk.

PRESIDENT-DESIGNATE

In accordance with By-Law I,4, LMS Council is very pleased to announce that Professor J. M. Ball, FRS, is the next President-Designate of the Society: as members will note from the item entitled 'Nominations for Council' elsewhere in this Newsletter, Council has nominated Professor Ball for election to Council as Member-at-Large in November 1995, and the intention is that he will be nominated by Council for election as President one year later.

N.J. Hitchin, President
R.Y. Sharp, Council and General Secretary

HONORARY PROFESSORSHIP

Professor James Eells has been appointed Honorary Professor at Nankai University, in Tianjin. The award was made on the occasion of the tenth anniversary of the founding by Professor S.S. Chern of the Nankai Institute of Mathematics

LMS UNDERGRADUATE PROJECT ARCHIVE

The LMS Electronic Archive now contains the LMS Undergraduate Project Archive. This is a collection of titles and descriptions for undergraduate projects in mathematics and statistics that have been used in various university departments. For various reasons, good and bad, the use of project work as part of the undergraduate curriculum seems to be on the increase. There is widespread support for the concept of project work but equally widespread doubt about its cost in staff time and effort. The aim of this archive is to relieve part of the burden on staff by making available for their use a sizeable collection of projects that have already been tried and tested. The archive is still in its infancy and the collection of titles is quite small. It will only become seriously useful if it gets a lot bigger. It can only become bigger if departments are prepared to submit projects to it. I hope that this support will be forthcoming.

The archive currently consists of two files. PROJ is a small collection of properly written-up project descriptions and QUICK is a larger list of raw titles. The archive can be accessed at the LMS Electronic Archive by ftp, gopher and WWW. The file README (the First Page in the Web version) gives further details of the archive, including the procedures for submitting projects. Comments and queries to John Pulham, Department of Mathematical Sciences, University of Aberdeen (e-mail: pulham@maths.abdn.ac.uk).

UNIVERSITY OF CAMBRIDGE

Isaac Newton Institute for Mathematical Sciences

Hewlett-Packard Senior Research Fellow

This international research institute is looking to recruit a Hewlett-Packard Senior Research Fellow. This is a full-time research appointment for a senior mathematical scientist. The appointment will be for up to three years, 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 in the research activities of Hewlett-Packard's Basic Research Institute in the Mathematical Sciences (BRIMS) in Bristol.

BRIMS was set up in 1994 as a joint venture between Hewlett-Packard and the Newton Institute. Researchers at BRIMS are free to pursue their own research programmes in areas of mathematical science of long-term relevance to Hewlett-Packard.

They are supported by a stimulating programme of visitors, post-doctoral Fellowships and workshops. Current research interests include dynamical systems, solitons, quantum chaology, probability and information theory.

The appointment could be at any point up to professorial level, depending on age and experience.

For further details please contact Professor Sir Peter Swinnerton-Dyer, Executive Director, at the Newton Institute, 20 Clarkson Road, Cambridge,CB3 0EH, telephone: 01223-335980, fax: 01223-330508; email: p.swinnerton-dyer@newton.cam.ac.uk. Further information about the Newton Institute is available on the World Wide Web at URL:http://www.newton.cam.ac.uk/and about BRIMS at URL:http://www-uk.hpl.hp.com/brims/. The closing date for applications is 31 August 1995.

The University of Cambridge operates an equal opportunities policy and aims to achieve the highest quality in teaching and research.

PROGRAMME AND CONFERENCE FUND

The Society's Programme and Conference Fund is used to give financial support to various mathematical activities in the UK. Grants will be made under five main headings, which are set out in summary form below. Members should note: (a) that there is a new scheme, namely Scheme 4, providing small grants to individual members of the Society working in the UK for supporting collaborative research; (b) that Scheme 1, which involved support for a visitor who would also speak at a Society meeting has been discontinued as it was virtually never used.

In general any mathematician working in the UK is eligible for a grant but if an applicant is not a member then the application must be countersigned by an LMS member. For Scheme 4, only LMS members working in the UK are eligible.

Type of Grant	General Purpose	Amount	Deadlines
Conference Grant	Support of conferences within the UK. The grant may be either a substantial contribution to a small meeting or a small contribution to a large meeting	Up to £2500	31 January, 31 May and 31 August.
Scheme 2	Support for a foreign visitor who will give lectures at three places in the UK	Return travel to UK up to a maximum of £300	Preferably three months before the visit
Scheme 3	Support of incidental costs for collaborative work by research groups from three (or more) different places	Travel or other costs up to £1000 for one year	31 January and 31 August
Scheme 4	Support of travel and subsistence costs incurred by a UK member or their collaborator in carrying out joint research.	Up to £300	31 January, 31 May and 31 August
fSU Scheme	Support of visits to UK by fSU mathematicians and support of visits to fSU by UK mathematicians	Basic travel and living expenses up to £1000	At least three months before the visit

Full information on the different types of grant is also available by e-mail either from the Meetings and Membership Secretary (d.j.collins@qmw.ac.uk) or the Society's Office (lms@kcl.ac.uk), or electronically (use ftp ftp.qmw.qc.uk or http://www.qmw.ac.uk/ lms/lms.html).

General advice and information on the award of grants can be obtained from the Meetings and Membership Secretary, Dr. D.J. Collins, School of Mathematical Sciences, Queen Mary and Westfield College, Mile End Road, London E1 4NS (telephone 0171-975-5480; e-mail: d.j.collins @qmw.ac.uk) .

Recent grants are:

Conference	Awardee	Grant	Location & Date
Order in Algebra and Logic	A.J. Macintyre	£1050	Oxford, March 1995
15th British Combinatorial Conference	J. Sheehan	£720	Stirling, July 1995
10th British Topology Meeting	R.J. Steiner	£1300	Glasgow, September 1995
The ATLAS 10 years on	R. Curtis	£2500	Birmingham, July 1995
BAMC 1995	J.R. Blake	£1200	Birmingham, April 1995
One-Day Function Theory Meeting	J.F. Feinstein	£255	Nottingham, September 1995
OCIAM	H. Ockendon	£3000	Oxford, January - December 1995
One-Day Combinatorial Colloquium	A.J.W. Hilton	£350	Reading, May 1995
Discrete Optimization and its Applications	F.B. Shephard	£2500	LSE, June 1995
STATMECH-11	D.A. Lavis	£641	KCL, June 1995
Kadison 70th Birthday Meeting	J.R. Ringrose	£780	Newcastle, July 1995
Nonlinear Phenomena: Solitons and Symmetries	P.A. Clarkson	£430	Kent, May 1995
Representations of GLn and Finite Dimensional Algebras	S. Donkin	£1295	QMW, September 1995
In Memoriam: Brian Hartley	R. Bryant	£430	Manchester, April 1995
7th Gregynog Relativity Meeting	M. Alcubierre	£1100	Gregynog, August 1995
NBFAS Summer Meeting	G. Blower	£300	Edinburgh, May 1995
Analytic Approaches in Continuum Mechanics	J. Sivaloganathan & A.B. Movchan	£1360	Bath, June 1995

Scheme 2 Visitor	Awardee	Grant	Places to visit
N. Hung	J.R. Hubbuck	£243	Manchester, Edinburgh, Aberdeen
V. Tonchev	V. Mavron	£300	Aberystwyth, Swansea, QMW, RHBNC
M. Guest	J. Bolton & L.M. Woodard	£300	Durham (Differential Geometry Day), Leeds
R. Oliver	C.B. Thomas	£120	Cambridge, Edinburgh, Glasgow
L.A. Lambe	R. Brown	£230	Bangor, Liverpool, Manchester
K.B. Laursen	H.G. Dales	£233	Leeds, Cambridge, KCL
M.J. Ablowitz	A.S. Fokas	£300	Loughborough, Leeds, Kent
F. Ruttiman	M. Edwards	£262	Oxford, Reading, Cambridge
I. Fesenko	C.J. Bushnell	£210	Cambridge, UMIST, KCL
O. Cornea	I.M. James	£100	Oxford, Aberdeen, Edinburgh
R.B. McFadden	J.M. Howie	£300	St. Andrews, Glasgow, York
R. Potthast	I. Chandler-Wilde	£198	Brunel, Bath, Strathclyde
K. Ruane	M.R. Bridson	£300	Oxford, QMW, Southampton

fSU Visitor	Awardee	Grant	Place(s) to visit
V. Nezhinskij	R.A. Fenn	£554	Sussex, Liverpool, Warwick, Southampton
N. Ratanov	K.D. Elworthy	£1000	Warwick, Cambridge
A. Kondrat'ev	A. Borovik	£1000	UMIST
V. Mazurov	A. Borovik	£1000	UMIST
P.M. Higgins	P.M. Higgins	£1000	Ekaterinenburg
A.I. Matasov	C.T.H. Baker	£1000	Manchester
A. Kisilev	J.R. Ockendon	£827	Oxford
F.L. Nazarov	J.M. Anderson & J.M. Clunie	£1000	UCL,York
M. Blank	F. Vivaldi	£150	QMW
Y.O. Golovin	M.C. White	£500	Newcastle - Banach Algebras 95
Y.V. Selivanov	M.C. White	£500	Newcastle - Banach Algebras 95
C.J. Chapman	C.J. Chapman	£778	St Petersburg
V.A. Kuznetsov	M.A.J. Chaplain	£1000	Bath, ICMS Edinburgh
A. Ishvina	B.D. Sleeman	£1000	Dundee, ICMS Edinburgh
V. Gould	V. Gould	£750	St Petersburg
I .Suprunenko	D. Testerman	£1000	Warwick, Lancaster, Manchester

Scheme 3 Topic	Applicants	Award	Institutions
Complex Dynamics and Discrete Groups	A.F. Beardon, I.N. Baker P.J. Rippon	£1000	Cambridge, IC, Open
Algebraic Model Theory	H.D. Macpherson, R.W. Kaye, M. Prest, A. Borovik	£1000	Leeds, Birmingham, Manchester, UMIST
Amalgams and Group Geometries	P.J. Rowley, C.W. Parker, L.A. Walker	£1000	UMIST, Birmingham Central Lancashire
Algebraic Geometry	G.K. Sankaran, M. Reid, P.B. Kronheimer	£1000	Cambridge, Warwick, Oxford
Algebra	J. Howie, T. Lenagan, S. Pride	£1000	Heriot-Watt, Edinburgh, Glasgow
Order and Disorder in Tissues	P. Maini, M.A.J. Chaplain, J.A. Sherratt	£1000	Oxford, Bath, Warwick
Topology	J.P.C. Greenlees, J.C. Hunton, N. Ray	£1000	Sheffield, Leicester, Manchester

REPRESENTATIONS OF GL_n AND FINITE DIMENSIONAL ALGEBRAS

A conference on this subject will take place at Queen Mary and Westfield College on 1st and 2nd September 1995. The conference is funded by the London Mathematical Society. For further details please contact Stephen Donkin, School of Mathematical Sciences, Queen Mary and Westfield College, Mile End Road, London E1 4NS (e-mail: donkin@uk.ac.qmw).

UNDERGRADUATE MATHEMATICS TEACHING CONFERENCE
University of Nottingham, 4-7 September 1995

The Undergraduate Mathematics Teaching Conference (UMTC) first took place in 1975 and has occurred annually since. It provides an opportunity for lecturers and others interested in mathematics in Higher Education to meet and share ideas in relation to undergraduate teaching. The themes adopted by the conference over the last nineteen years have ranged from the perennial to the topical, but all were relevant at the time and gave delegates, at whatever level of their career, an overview of the thinking at other establishments and a far deeper insight into the particular topic they had chosen to study. Delegates return from UMTC with fresh ideas and an enthusiasm to put them into effect.

Much of the conference is spent in small groups of around ten, working on a brief which may relate to a subject area or to a more general theme. Each group produces a report comprising examples, recommendations, relevant arguments and incorporating critical feedback from the other groups. The final reports form the major part of the published *Proceedings*. The briefs this year are:

The New A Level and the National Curriculum Group members are asked to formulate a first year syllabus based on the major changes to the 'A' Level syllabus and the way entrants will have been taught if they have followed the National Curriculum.

The Use of Spreadsheets in the Teaching of Mathematics Group members who may or may not be familiar with spreadsheets will outline how this topic can be incorporated into a mathematics curriculum.

Induction Courses for Mathematics Lecturers Group members will identify the aims of an induction process and devise an appropriate timescale for their implementation.

The changes being made to the 'A' Level curriculum at this time have major implications for tertiary mathematics education and for prospective employment. The opening plenary session will have as speakers: Rt.Hon. Mrs Gillian Shepherd MP, Minister for Education (or representative), Professor David Crighton of Cambridge and Dr James R Smith of Jaguar Cars who will address and debate this issue. This will make an ideal starter for one of the group sessions. A second plenary session on advanced mathematical thinking and the computer will be given by Professor David Tall of Warwick.

The successful introduction of a presentation session on Wednesday morning was made last year and this will be continued this year. On the same morning a discussion session on mathematical proof will be led by Dr Keith Austin of Sheffield. Also, during this time there will be displays of books and computer software.

The all-in conference fee is £220. If you are non-resident the fee is £170 to include lunch and dinner from Monday to Wednesday. Participation in only part of the conference (ie one day) is not possible. An optional packed lunch can be provided on the Thursday of departure at a cost of £6 (non-refundable). Two copies of the Conference Proceedings are included in the fee. Registration forms can be obtained from: Julie Perkins, UMTC 1995, Shell Centre for Mathematical Education, University of Nottingham, Nottingham NG7 2RD.

HISTORY OF TOPOLOGY

Professor I.M. James of the Mathematical Institute, Oxford, is about to embark on a History of Topology (algebraic, differential and geometric, from the first ideas until quite recently). He would be glad to hear from anyone who might be able to assist in this project particularly those who know of unpublished material which might be relevant

The Technique of Pseudodifferential Operators

H. O. CORDES

This technique is used in the solution of boundary problems for partial differential equations. Its applications include the Dirac theory of quantum mechanics. The author discusses connections to the theory of C*-algebras and the relation of the hyperbolic theory to the propagation of maximal ideals.

£24.95 net PB 0 521 37864 8 392 pp. 1995
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London Mathematical Society Lecture Note Series 202

Geometry of Sets and Measures in Euclidean Spaces

Fractals and Rectifiability

PERTTI MATTILA

The main theme here is the study of geometric properties of general sets and measures in Euclidean space. Examples to which this theory applies include fractal-type objects such as strange attractors for dynamical systems, and those fractals used as models in the sciences.

£35.00 net HB 0 521 46576 1 356 pp. 1995
Cambridge Studies in Advanced Mathematics 44

Groups '93 Galway / St Andrews

C. M. CAMPBELL, T. C. HURLEY,
E. F. ROBERTSON, S. J. TOBIN and J. J. WARD

Volumes 1 and 2 contain selected papers from the international conference 'Groups 1993 Galway / St Andrews' which was held in August 1993. The wealth and diversity of group theory is represented in these two volumes. The articles will, with their many references, prove valuable both to experienced researchers and also to new postgraduates interested in group theory.

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An introduction to the subject suitable for beginning graduate students, concentrating on the important case of two dimensions. This permits a simpler treatment than other books, yet is still sufficient for a wide range of applications. Exercises are provided throughout, enabling the book to be used with advanced courses on complex analysis or potential theory.

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Ergodic Theory and Harmonic Analysis

Proceedings of the 1993 Alexandria Conference

Edited by K. E. PETERSEN and I. SALAMA

The papers printed here explore many of the rapidly developing connections between ergodic theory and other branches of mathematics, giving the background of each area, the most outstanding recent results and the most current promising lines of research. They should form perfect starting points for beginning researchers.

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This book provides, for the first time, a clear and unified exposition of the main techniques and results in operator algebras, including a substantial amount of new and unpublished material. This book will be welcomed as an excellent resource for all graduate students and researchers working in this area.

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Special price for LMS members £13.45
London Mathematical Society Lecture Note Series 210

Vector Bundles in Algebraic Geometry

N. J. HITCHIN, P. E. NEWSTEAD and W. M. OXBURY

The 1993 Durham symposium on vector bundles in algebraic geometry brought together some of the leading researchers in the field to explore further these interactions. This book is a collection of survey articles by the main speakers at the Symposium and presents to the mathematical world an overview of the key areas of research involving vector bundles.

£24.95 net PB 0 521 49878 3 368 pp. 1995
Special price for LMS members £18.70
London Mathematical Society Lecture Note Series 208

Now in paperback

A Primer of Nonlinear Analysis

A. AMBROSETTI and G. PRODI

This is an elementary and self-contained introduction to nonlinear functional analysis and its applications, especially in bifurcation theory. The book is intended to accompany advanced courses for students of pure and applied mathematics and physics; exercises are consequently included.

£15.95 net PB 0 521 48573 8 180 pp. 1995
Cambridge Studies in Advanced Mathematics 34

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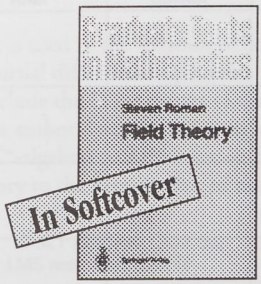

Vol. 158

S. Roman

Field Theory

1995. XII, 272 pp. 8 figs. £ 21.00
ISBN 0-387-94408-7

The book presents the basic theory of fields. The first part begins with a discussion of polynomials over a ring, the division algorithm, irreducibility, field extensions, and embeddings. The second part is devoted to Galois theory. The third part treats the theory of binomials. The book concludes with a chapter on families of binomials - the Kummer theory.

Vol. 151

J.H. Silverman

Advanced Topics in the Arithmetic of Elliptic Curves

1994. XIII, 525 pp. 17 figs. £ 30.00
ISBN 3-540-94328-5

The author presents six important topics: I. Elliptic and modular functions for the full modular group. II. Elliptic curves with complex multiplication. III. Elliptic surfaces and specialization theorems. IV. Néron models, Kodaira-Néron classification of special fibres, Tate's algorithm, and Ogg's conductor-discriminant formula. V. Tate's theory of q-curves over p-adic fields. VI. Néron's theory of canonical local height functions.

Also available by J.H. Silverman:
The Arithmetic of Elliptic Curves
1986. £ 38.50
ISBN 3-540-96203-4

Vol. 152

G.M. Ziegler

Lectures on Polytopes

1995. IX, 370 pp. £ 21.00
ISBN 3-540-94365-X

These lectures introduce the basic facts about polytopes, with an emphasis on the methods that yield the results. They discuss important examples and elegant constructions and show the excitement of current work in the field. The material requires only linear algebra as a prerequisite, but takes the reader quickly from the basics to topics of recent research, including a number of unanswered questions.

For more information see the author's home page:
http://winnie.math.tu-berlin.de/ßziegler/

Vol. 153

W. Fulton

Algebraic Topology

1994. Approx. 435 pp. £ 21.00
ISBN 3-540-94327-7

This book introduces the important ideas of algebraic topology by emphasizing the relation of these ideas with other areas of mathematics. The authour concentrates on concrete problems in spaces with a few dimensions, introducing only as much algebraic machinery as necessary. This makes it possible to see a wider variety of important features in the subject than is common in introductory texts.

Visit Springer on the Internet at http://www.springer.de

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Sweetapple House, Catteshall Rd., Godalming, Surrey GU7 3DJ, England

DEPARTMENTAL NEWS

Goldsmiths College Dr Pauline Mellon from University College, Dublin, will be visiting the Mathematics Department from 25 June to 29 July 1995, supported by the British Council. Her research area is in Banach manifolds and Jordan triples.

Sheffield University G.J. Bailey was appointed to a professorship in October 1994 and A.S.I. Zinober is to be promoted to a professorship from October 1995. Professor Zinober will assume the headship of the Applied Mathematics Section in the next session.

Southampton University Dr J.W. Anderson, currently at Rice University, Houston, and Dr I.J. Leary, currently at the Max-Planck-Institut, Bonn, have been appointed as Lecturers in Pure Mathematics. Dr Anderson's research interests are in Kleinian groups. Dr Leary's research interests are in cohomology of groups and related areas. Dr G.A. Jones and Dr D. Singerman have each been promoted to Reader in Pure Mathematics.

West of England University Dr Stephen Ryrie has been appointed Associate Dean and Head of Mathematical Sciences in the Faculty of Computer Studies and Mathematics with effect from April 1995.

EUROPEAN MATHEMATICAL PRIZES

The Society has been asked to nominate candidates for prizes to be awarded at the European Congress of Mathematicians in Budapest in July 1996. The prizes will be awarded to young European mathematicians in recognition of outstanding work - normally, the recipients will be at most 32 years old at the time of the Congress. In this context, "European" means that "the recipients should have their permanent address in Europe, which includes the ex-Soviet countries and Israel".

Members of the Society are invited to submit to the Chairman of the Society's Prize Committee, confidentially and in writing, their views on possible candidates for the ECM96 Prizes. These should include:

- name, date of birth, nationality
- date and place of PhD
- list of publications - description of the work of the person
- names of three mathematicians who are familiar with his work

In order to meet the deadline for nominations, members should send their response to Professor N.J. Hitchin, Department of Pure Mathematics and Mathematical Statistics, 16 Mill Lane, Cambridge CB2 1SB before **31 July 1995.**

VISIT OF DR ROLAND POTTHAST

Dr Roland Potthast of the Institut für Numerische und Angewandte Mathematik, Universität Goettingen will be visiting the UK in August/September 1995, partially supported by a Scheme 2 grant from the London Mathematical Society. His current research interests centre on differentiability of boundary integral operators and boundary value problems with respect to the domain and applications to inverse scattering. He will give lectures as follows: 3.30 pm Wednesday 23 August at the University of Strathclyde (contact G.F. Roach), 2 pm Wednesday 30 August at Brunel University (contact S.N. Chandler-Wilde), 11.15 am Wednesday 6 September at the University of Bath (contact I.G. Graham). At Brunel and Bath he will talk on "Domain derivatives in electromagnetic scattering", and at Strathclyde on "Differentiability properties of boundary integral operators in acoustic and electromagnetic scattering". Further details may be obtained from S.N. Chandler-Wilde, Department of Mathematics and Statistics, Brunel University, Uxbridge UB8 3PH (e-mail: Simon.Chandler-Wilde@brunel.ac.uk).

7TH GREGYNOG WORKSHOP IN GENERAL RELATIVITY

The General Relativity Group at the University of Wales, College of Cardiff, headed by Professor Bernard F. Schutz, wishes to announce the 7th Gregynog Relativity Workshop in General Relativity. This workshop will focus on Numerical Relativity, and will take place from Sunday August 20th to Thursday August 24th, 1995. Gregynog is a beautiful stately home surrounded by woods in the middle of Wales (United Kingdom). Previous relativity workshops at Gregynog have been very successful. The last one, which focused on black- hole perturbations, took place in August 1993 and was attended by some forty researchers from all over the world.

The format of the conference will be five talks in the morning session, plus four talks in the afternoon, but this might change depending on the final number of participants. The talks should be around 30 or 40 minutes long. Topics to be discussed in the Conference include: initial data for numerical relativity, gravitational wave emission from neutron stars and black-holes, critical phenomena in gravitational collapse, black-hole collisions, 2+2 approach to numerical relativity, connection approaches to numerical relativity, visualization of numerical spacetimes, etc.

At this stage, the following people have indicated their intention to attend the conference as invited speakers: Carles Bona (Universitat de les Illes Balears); Silvano Bonazzola (Observatoire de Paris); Matthew Choptuik (Center for Relativity, University of Texas at Austin); Charles R. Evans (University of North Carolina - Chapel Hill); Richard A. Matzner (Center for Relativity, University of Texas at Austin); Edward Seidel (NCSA, University of Illinois) Wai-Mo Suen (Washington University).

The cost of the Conference will be 240 sterling pounds per person. We expect to have very limited funds to pay for the expenses of participants. If you wish to apply for some financial support please indicate it to us as soon as possible. If you wish to attend the meeting, please send your name and address to Miguel Alcubierre, either by ordinary mail to the address: Department of Physics and Astronomy, University of Wales, College of Cardiff, PO Box 913, Cardiff CF2 3YB, Wales, or by e-mail to the address: M.Alcubierre-Moya@astro.cf.ac.uk. If you would like to give a talk, please also send a title and abstract. The organisers of the 7th Gregynog workshop in General Relativity wish to thank the London Mathematical Society for financial support.

PROFESSOR RAYMOND LYTTLETON

Professor Raymond Lyttleton, FRS, died on 16 May aged 84. The following, reproduced by kind permission of *The Times*, will be of particular interest to those involved in publishing.

"His biting wit was vividly exemplified on one memorable occasion which has gone down in the folkore of the Royal Astronomical Society. At a particularly stormy meeting of the Council of the RAS which was dealing with a muddle that had occurred in the refereeing of papers, Lyttleton irritatedly interjected that all that was needed to avoid such confusion was to ensure that one chose competent referees. At this the RSA president exploded, stressing that in the cases under discussion they had the most eminent astronomers as referees. Lyttleton silkily responded: 'Sir, you must have misheard me. I did not say eminent, I said competent.'"

UNIVERSITY OF SUSSEX

UNIVERSITY OF SUSSEX AT BRIGHTON

School of Mathematical Sciences
CHAIR IN STATISTICS

Applications are invited from men and women distinguished in research, for a Professorship in Statistics in the newly created School of Mathematical Sciences. Applicants with research interests in any branch of statistics or applied probability will be considered. The appointee will be expected to provide academic leadership and develop research links with other groups, both internally and externally. The post will be filled at a mutually convenient date, preferably no later than 1 January 1996. There will be a Lectureship either associated with, or closely following, this appointment.

Salary will be in the Professorial range.

Informal enquiries may be made to J.Haigh@sussex.ac.uk or by telephone to Dr Haigh (01273) 678104. Application forms and further particulars are available from Ms Victoria Lay, Personnel Office, Sussex House, University of Sussex, Falmer, Brighton BN1 9RE. Tel: (01273) 678201. E-mail: V.L.P.Lay@sussex.ac.uk. Closing date **31 July 1995.**

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MATHEMATICS AND COMPUTING

a.m. turing

THE LMS ELECTRONIC ARCHIVE

The archive now contains the following items:

a. The LaTeX style files for the LMS Bulletin and Journal.
b. Information on LMS grants and how to apply for them, with a downloadable application form.
c. The diary of current events.
d. The Guide for Users of the LMS Library.
e. General information on the LMS and some other institutions of interest to mathematicians.
f. A collection of sample undergraduate mathematical projects, assembled by John Pulham.
g. A collection of material on mathematics education in the UK, assembled by Tim Porter.

There are three ways to reach the archive.

1. By World Wide Web

For this, type at your terminal

www http://www.qmw.ac.uk/lms/lms.html <RETURN>

(If this doesn't work, try replacing the first 'www' by 'mosaic' or 'lynx'. If none of these work, ask your local computer manager.) After a pause, you will see a page entitled 'London Mathematical Society'. You can move through the text using the space bar or the arrow keys. The arrow keys will allow you to highlight certain words which are links to other documents. For example if you highlight 'Diary' and press the RETURN key, you will reach a page containing the diary of events. If you highlight 'grant schemes' and press RETURN, you will reach a page describing LMS grants and how to apply for them, and a further link will take you to an application form which you can save and print out. Other links will lead you to the Web pages of other organisations. You are invited to explore.

2. By anonymous ftp

You can use this protocol to download documents, for example the style file. Probably the simplest way to get to the anonymous ftp archive is through the link on the Web page. But you can also reach it directly, by typing

ftp ftp.qmw.ac.uk <RETURN>

(See below for what to type if you are at a VAX terminal.) After a pause the terminal will ask you for your Name, and you should reply

anonymous <RETURN>

You will then be asked for your Password, and for this you type your e- mail address (followed by <RETURN>). When the next prompt appears, type

cd /pub/LMS <RETURN>

This will get you into the archive. To get the file 'README', type

get README <RETURN>

The archive files are in 'filestore' and to reach them you type

cd filestore <RETURN>

You can then list the files by typing

dir <RETURN>

You can transport any of the files to your home directory by typing

get (name of file) <RETURN>

Wait until a message appears on the screen to tell you that the transfer is complete. When you have finished transporting items from the archive, type

quit <RETURN>

and you will be returned to your home directory.

These instructions are for Unix users. If you are at a VAX terminal instead, the corresponding commands are:

FTP FTP.QMW.AC.UK <RETURN>
ANONYMOUS <RETURN>
SET DEFAULT "/pub/LMS" <RETURN>
GET "README" <RETURN>
SET DEFAULT "filestore" <RETURN>
DIR <RETURN>
GET "(name of file)" <RETURN>
EXIT

3. By gopher

Gopher allows you to download files, and also to read them before you download them. To use it, type

gopher gopher.qmw.ac.uk <RETURN>

and wait for a list to appear on the screen. (If this doesn't work, ask your computer manager whether you have gopher, and how to access it.) You can move up and down the list by pressing the up and down arrow keys. When an item in the list is selected, you can reach the item by pressing <RETURN>; this will take you either to a listed document, or to another list which you can use in the same way. You can leave an item and go back to the list that it came from by pressing the left arrow. Your screen will probably give you instructions for downloading a document that you are reading. If it doesn't, try typing the letter P (for Print) or S (for Save).

Wilfrid Hodges
Derek Holt

THE FIELDS INSTITUTE FOR RESEARCH IN MATHEMATICAL SCIENCES

Workshop on Arithmetic Algebraic Geometry Monday 23 October to Friday 27 October 1995 at The Fields Institute, Toronto, Ontario, Canada. Organisers: Manfred Kolster and Victor Snaith (McMaster University). This workshop is intended to survey recent striking advances in the application of algebraic geometry to number theory. In particular, during the workshop, Andrew Wiles will give two lectures in The Fields Institute Distinguished Lecture Series.

Registration: For a registration package please contact Lynne Wight by 15 August 1995 at The Fields Institute, 185 Columbia Street West, Waterloo, Ontario, Canada N2L 5Z5, e-mail: alggeom@fields.uwaterloo.ca, fax: (519) 725-0704; tel: (519) 725-0096

LMS LIBRARY MATTERS

The library: registration arrangements for borrowers

It has been agreed with University College Library that London Mathematical Society members will need to be fully registered and issued with a University College Library card before they can borrow items from the joint UC/LMS collection. This entails filling in a form and providing a passport-size photograph. For personal users, library cards can be provided on the spot at the Issue Desk of the Science Library at University College. Alternatively, members may register by post. You may request the relevant form by post, e-mail, fax or telephone (mentioning membership of the Society) from: Mr Dilip Chatarji, The Library, University College, Gower Street, London WC1E 6BT; e-mail: lmsinf@ucl.ac.uk; tel: (0171) 387 7050 ext. 2628.

Previously it has been the case that members could borrow items on the strength of their listing in the current London Mathematical Society Membership List or other proof of membership of the Society. This informal arrangement will continue in respect of access to the library and the provision of photocopies, both by post and in person. However, the University College system requires a library card before any loan can be issued.

The Domesday Book

In 1986, when the Domesday Book was being re-bound by the Public Records Office, a limited facsimile edition was produced. One copy of this so-called "Penny Edition" of the Domesday Book was presented to the London Mathematical Society by Mr. V. Naylor. This important and fascinating document, together with associated maps and explanatory material, is normally kept in the strong room of University College Library. From time to time, it is put on display in the Flaxman Gallery of the Library. Recently, it was lent to the Royal Astronomical Society to be exhibited as part of the celebrations of the 175th anniversary of its founding.

The Society is willing to consider requests to borrow the Domesday Book to be exhibited by organisations at suitable venues. For such loans the Society would require that :

(i) adequate insurance is taken out by the borrower,

(ii) the Society is acknowledged by name in the exhibition.

Subject to these conditions, the Society would wish to encourage requests to exhibit the Domesday Book so that the possession of this valuable volume is put to good use.

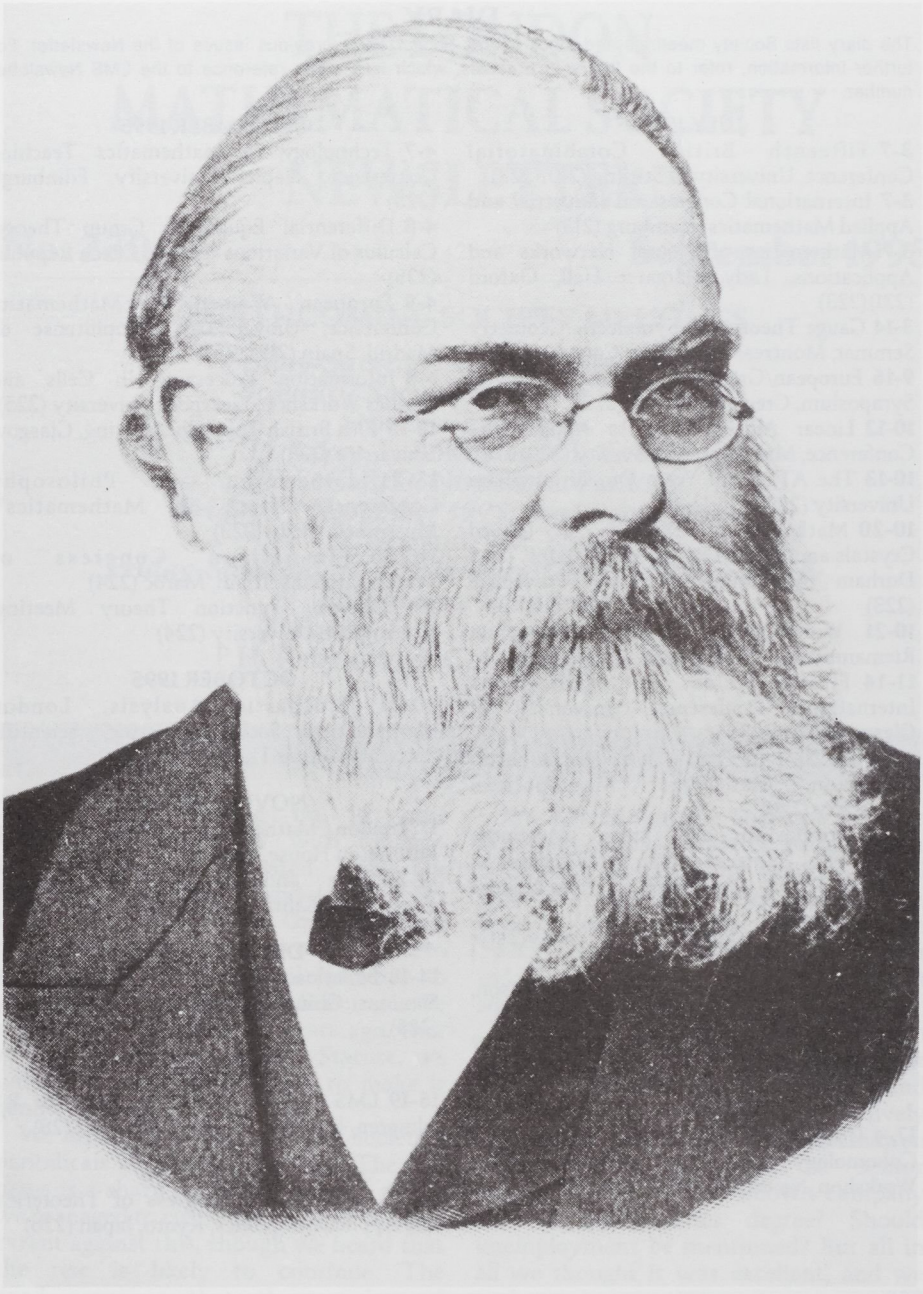
Combinatorica

One issue of COMBINATORICA is missing from the London Mathematical Society Library. It is Volume 8 (1988) No. 3. Unfortunately, this issue is out of print and cannot be replaced through the usual channels. The Society would be grateful to anyone who has a copy that could be made available to the Library. Offers should be addressed to the Librarian.

John Erdos
Librarian

ISTITUTO PER LA RICERCA DI BASE

There will be an Inauguration Ceremony for this newly-founded institute on 7 August 1995. It will be followed by International Workshops, 8 - 12 August 1995, on Multivalued Hyper-Structures, Integro-Differential Geometries, Clean Hadronic Energy, Gravitation, Theoretical Biology. Further information can be obtained from Istituto per la Ricerca di Base, I-86075 Monteroduni (IS), Molise, Italy; e-mail: ibrrms@pinet.aip.org; fax: +39-865491145.



H.A. SCHWARZ
Honorary Member 1892

DIARY

The diary lists Society meetings and other events publicized 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.

JULY 1995

3-7 Fifteenth British Combinatorial Conference, University of Stirling (210)(223)

3-7 International Congress on Industrial and Applied Mathematics, Hamburg (213)

3-7 Mathematics of Neural Networks and Applications, Lady Margaret Hall, Oxford (221)(223)

3-14 Gauge Theory and Symplectic Geometry Seminar, Montreal University, Canada (222)

9-16 European/Gregynog Stochastic Analysis Symposium, Gregynog, Wales (222)

10-12 Linear Algebra and Its Applications Conference, Manchester University (220)

10-13 The ATLAS 10 Years On, Birmingham University (223)

10-20 Mathematical Models of Liquid Crystals and Related Polymeric Systems, LMS Durham Symposium, Durham University (223)

10-21 Workshop on Ergodic Theory on Riemannian Manifolds, Warwick (222)

11-14 Finite Fields & Applications International Conference, University of Glasgow (219)(223)

13-16 British Congress of Mathematics Education, Manchester Metropolitan University (220)

17-21 Symposium on Sieve Methods, Exponential Sums and their Applications in Number Theory, University of Wales College of Cardiff (221)

17-28 Banach Algebras '95, Newcastle University (217) (221)

22 Meeting in Honour of Richard V. Kadison, Newcastle University (227)

24-5 Aug Workshop on Differential Geometry & Stochastic Analysis, Warwick (222)

AUGUST 1995

17-4 Completely Bounded Maps and Cohomology in Operator Algebras EPSRC Workshop, Newcastle University (223)

SEPTEMBER 1995

4-7 Technology in Mathematics Teaching Conference, Napier University, Edinburgh (225)

4-8 Differential Equations, Group Theory, Calculus of Variations Course, Czech Republic (228)

4-9 European Women in Mathematics Conference, Universidad Complutense de Madrid, Spain (219) (223)

6-8 Information Processing in Cells and Tissues Workshop, Liverpool University (225)

12-13 10th British Topology Meeting, Glasgow University (228)

13-21 Mathematics and Philosophy Conference "Truth in Mathematics", Mussomeli, Sicily (223)

18-26 Pan-African Congress of Mathematicians, Ifram, Maroc (224)

25 One-day Function Theory Meeting, Nottingham University (224)

OCTOBER 1995

20-21 Stochastic Analysis, London Mathematical Society Meeting, Scientific Societies Lecture Theatre, London

NOVEMBER 1995

17 London Mathematical Society Meeting, Burlington House, London

19-22 Pure and Applied Mathematics Conference, Bahrain University (222)

DECEMBER 1995

14-18 Functional Analysis and Related Topics Seminar, Chinese University of Hong Kong (225)

APRIL 1996

15-19 LMS Invited Lectures - Professor F.J. Almgren, University College London (228)

AUGUST 1996

25-31 International Congress of Theoretical and Applied Mechanics, Kyoto, Japan (226)

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 WIV 0NL, to arrive before the first day of the month prior to publication. Telephone 0171-437 5377, fax 0171-439 4629, e-mail lms@bay.cc.kcl.ac.uk. The London Mathematical Society is registered with the Charity Commissioners.

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