

THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 167

December 1989

FORTHCOMING SOCIETY MEETINGS

Friday 19 January 1990, Burlington House

G. Horrocks, P.M.H. Wilson

Friday 16 February 1990, Bath

Friday 16 March 1990, Burlington House

Friday, Saturday, 18-19 May 1990, Sheffield

Friday 15 June 1990, Burlington House

Friday 19 October 1990, Burlington House

Friday 16 November 1990, Burlington House

1989 COUNCIL ELECTIONS

At the Annual General Meeting on 17 November 1989, the following members were elected to Council: J. H. Coates (President); E.C. Lance and R.L.E. Schwarzenberger (Vice-Presidents); J.D.M. Wright (Treasurer); R.Y. Sharp (Council and General Secretary); A.R. Pears (Meetings and Membership Secretary); D.A. Brannan (Publications Secretary); J.A. Erdos (Librarian); S.K.

Donaldson, W.D. Evans, C.J. Mulvey, P. Vámos, N.J. Young (Members-at-Large, 2-year terms); J.M. Howie, P.M. Neumann (Members-at-Large, 1-year terms). J.W. Bruce, D.G. Crighton, P. Holgate, E.G. Rees and C.M. Series are Members-at-Large whose terms expire in 1990.

R.Y. Sharp
Council and General Secretary

1990 LMS PRIZES

The Council proposed to award, in Summer 1990, a Polya Prize, a Senior Berwick Prize, and one or more Junior Whitehead Prizes. Accordingly, it has appointed J.H. Coates, D.G. Crighton, S.K. Donaldson, J.A. Green and E.C. Lance to the 1990 Prizes Committee.

The Council invites members of the Society to submit their views on possible candidates for the award of these Prizes confidentially in writing to any member of the Prizes Committee by 1 March 1990. In each case, nominations should contain explicit reference to the grounds on which the nomination is based. Council reserves the right not to make an award in the event that no candidate of sufficient merit is recommended by the Prizes Committee for a particular Prize.

The Polya Prize is awarded in recognition of outstanding creativity in, imaginative exposition of, and distinguished contribution to, mathematics within the United Kingdom; it may not be awarded to any person who has previously received the De Morgan Medal.

The Senior Berwick Prize is awarded to a mathematician who is a member of the Society on 1 January 1990, in respect of a definite piece of

work actually published by the Society in any of its publications (including *Nonlinearity* and the various LMS book series) during the period from 1 January 1986 to 31 December 1989; it may not be awarded to any person who has previously received the De Morgan Medal.

The Junior Whitehead Prizes are awarded to mathematicians who on 1 January 1990 are normally resident in the United Kingdom or members of the Society mainly educated in the United Kingdom, who are under the age of forty years, and who are not already Fellows of the Royal Society. Grounds for the award may include work in and influence on mathematics.

No person may be awarded a given Prize more than once, and the President of the Society and the members of the Prizes Committee are ineligible for any of the awards. The detailed regulations and procedure for the award of each Prize can be obtained from Professor R.Y. Sharp, Department of Pure Mathematics, University of Sheffield, Hicks Building, Sheffield S3 7RH.

R.Y. Sharp
Council and General Secretary

COMPUTATIONAL AND APPLIED MATHEMATICS CONGRESS

The 13th IMACS World Congress on Computation and Applied Mathematics will be held from 22nd to 26th July 1991 at Trinity College, Dublin.

All enquiries about the Congress should be addressed to: Paulene McKeever, IMACS '91, 40 Millview Lawns, Malahide, Co. Dublin, Ireland.

COMPUTING METHODS IN APPLIED SCIENCES AND ENGINEERING

The ninth international conference on Computing Methods in Applied Sciences and Engineering will be held from 29th January to 2nd February 1990. The major topics are: Methodology in numerical modelling; Computational fluid dynamics; Computational physics and chemistry. The conference is organised by the Institut

National de Recherche en Informatique et en Automatique (INRIA) and will be held at Maison de la Chimie, Paris. For further information write to INRIA, Public Relations Department, Bureau des Colloques, B.P. 105 Rocquencourt, 78153 Le Chesnay Cedex, France.

DYNAMICS OF NUMERICS AND NUMERICS OF DYNAMICS

The IMA conference on Dynamics of Numerics and Numerics of Dynamics will be held at the University of Bristol from 31st July to 2nd August 1990. The theme of the meeting is twofold: applications of numerical analysis to problems in dynamical systems and the use of techniques from dynamical systems in numerical analysis.

The first day of the meeting will be devoted to a short course on three topics: Theory of bifurcations; Nonlinear dynamics of partial differential equations and Stability theory of numerical

methods for differential equations.

A preliminary list of invited speakers includes: J. Carr, J. Hale, H.B. Keller, A.R. Mitchell, D. Rand, J.M. Sanz-Serna, S. Smale, C. Sparrow, I. Stewart, R. Temam and N.O. Weiss.

Abstracts and all other enquiries should be sent to Miss Yvonne May, Conference Officer, Institute of Mathematics and its Applications, Maitland House, Warrior Square, Southend-on-Sea, Essex SS1 2JY.

SOUTHEAST ASIAN CONFERENCE ON MATHEMATICAL EDUCATION

SEACME 5, the Fifth Southeast Asian Conference on Mathematical Education, will be held at the University of Brunei Darussalam, in Brunei Darussalam, from 14th to 16th June 1990.

For further information, contact Dr David Daniels, SEACME 5, Secretary, University of Brunei Darussalam, Gadong, Brunei Darussalam, SE Asia

CHAOS IN AUSTRALIA

A conference titled Chaos in Australia, sponsored by the Lefebvre Scientific Foundation, will be held at the University of New South Wales, Sydney, from 4th to 9th February 1990. The themes of the conference are: Detection and analysis of chaos in real-world applications; Fractals and dimensionality; Computational aspects of dynamical systems and Chaos in experimental science.

Invited Lectures will be presented by many world

experts in the field, including M. Feigenbaum, M.D. Kruskal, A. Libchaber, R.M. May, M. Mendes-France, I. Procaccia, P.E. Rapp, D. Ruelle, R. Sagdeev and G.M. Zaslavsky. Contributed papers will be called for in a circular to be distributed soon.

To be added to the mailing list, contact Gavin Brown, Chaos in Australia Conference, School of Mathematics, University of New South Wales, Kensington, NSW 2033, Australia.

BRITISH MATHEMATICAL COLLOQUIUM 1990

The 42nd British Mathematical Colloquium will be held at the University of East Anglia, Norwich from 3rd to 5th April 1990. Application forms are

available from: 42nd BMC, School of Mathematics, University of East Anglia, Norwich, Norfolk NR4 7TJ.

TENTH CONFERENCE ON ANALYTIC FUNCTIONS

The tenth conference on analytic functions will be held in Kozubnik, Poland from 22nd to 27th April 1990. The conference topics are: Geometric function theory of one complex variable; Quasiconformal mappings; Complex analysis in several variables; Complex analytic geometry and potential theory. The conference will consist of invited

lectures (45 minutes) and short communications (20 minutes).

For further information write to: K. Rusek, Instytut Matematyki UJ, ul. Reymonta 4, 30-059 Krakow, Poland.

NEWS OF THE LMS LIBRARY

The Society's library is housed at University College London, in the 'DMS Watson' Science Library. By agreement between the College and LMS the day-to-day running of the library, involving the lending of material, cataloguing and so on, is handled by the staff of the College library. All authorized users of the library have access to the LMS collection and LMS members have access to the science collection as well as to the Society's library.

LMS members in London can, of course, use the library by going there but that is not really practical for many of you. The library will handle requests from members for books, journals, photocopies by post. UCL will need some identification.

At this point technology steps in to help even more. UCL has recently installed the LIBERTAS computerized cataloguing and issue system. This is available on the JANET electronic network, to which all universities and polytechnics have access. It is now possible for any LMS member – even if you are not a registered reader at UCL – to browse through the catalogue, which allows searches for authors, specific titles, subject areas by giving keywords (a good application of elementary set theory!). More than that, you can find out the location of a book and make a reservation of it, so that it can be sent to you. The 'X25' address of UCL Library is 000005112800 but the name UCL.LIB (where you obviously note the dot) has been registered with JANET's masters, so it is likely that many institutions will use this mnemonic as a way of accessing the library. If that is the case in your institution, you can simply type

call ucl.lib

(upper and lower case are normally equally acceptable) once you are connected to JANET. Masochists may type the full address,

call 000005112800

to achieve the same effect. Ask your local computer centre to set up the mnemonic form, it saves a lot of time and effort. Within UCL, the service is accessed through the College's data exchange, by giving the name *library*. From there on, the system prompts you at all stages and typing ? gives additional help.

To reserve books you, as a registered user, need a 'PIN', just as for a cash dispenser. This is obtained from the Issue Desk, DMS Watson Library.

The library also has FAX equipment and can handle requests, for instance for photocopying – including the FAXing of a copy back to you – in this way.

You will be asked to pay for postage, photocopying and FAX.

As well as all this electronic gear, the library also has genuine, living, breathing people! The main contact for LMS members is Mrs Julia Munro, with Mr Edward Fernandes and Mr John Spiers as alternates. Electronic mail to these three will soon be available.

Do make use of the facilities!

Items to remember:

JANET access: by X25 address – call 000005112800, by mnemonic – call ucl.lib (but there may be local variations).

FAX number: 01 380 7373

Issue desk: 01 387 7050, ext 2616

Julia Munro: 01 387 7050 ext 2638

Note 1: 01 387 7050 is the main UCL number, some institutions may have abbreviated dialling codes.

Note 2: London telephone numbers will change in the Spring of 1990 and the code will then be 071 instead of 01.

Paul Samet
Retiring Librarian

DISORDER IN PHYSICAL SYSTEMS

Probability and statistical mechanics are the two principal themes of this meeting to celebrate the 70th birthday of John M. Hammersley. Lectures will be held in the Mathematical Institute at Oxford University, beginning after lunch on Monday 26th March and finishing on the evening of the 27th. The provisional list of participants includes: N.H. Bingham (RHBNC), B. Bollobás (Cambridge), P. Clifford (Oxford), C. Domb (Bar-Ilan), P. Erdős (Budapest), J.W. Essam (RHBNC), G.R. Grimmett (Bristol), D.C. Handscomb (Oxford), F.P. Kelly (Cambridge), D.G. Kendall (Cambridge), W.S. Kendall (Warwick), J.F.C. Kingman (Bristol), C.J.H.

McDiarmid (Oxford), J. S. Rowlinson (Oxford), D.J.A. Welsh (Oxford), S.G. Whittington (Toronto), P. Whittle (Cambridge), J.C. Wierman (Johns Hopkins), D. Williams (Cambridge).

All are welcome to attend the sessions, for which there will be no registration fee. For further details, please contact G.R. Grimmett (School of Mathematics, University Walk, Bristol BS8 1TW, e-mail: Grimmett@np1a.bristol.ac.uk) or D.J.A. Welsh (Merton College, Oxford OX1 4JD). Limited accommodation for participants is available in Merton College.

LMS DURHAM SYMPOSIA 1990

There will be three Symposia in 1990:

5 July – 15th July

Groups and Combinatorics

Organisers: Dr J. Saxl*, Dr M.W. Liebeck.

Main Speakers: M. Aschbacher, J.H. Conway, W.M. Kantor, G.M. Seitz, B. Stellmacher, J.G. Thompson, J. Tits.

11 July – 21 July

Stochastic Analysis

Organisers: Professor N.H. Bingham*, Dr M.T. Barlow

Main Speakers: D.J. Aldous, D.A. Dawson, R. Durrett, H. Kesten, P.A. Meyer, S.R.S. Varadhan.
22 July – 1 August

Boolean Function Complexity

Organisers: Professor M.S. Paterson*, Dr W.F. McColl, Professor A.C. Yao

Main Speakers: N.J. Pippenger, A.A. Razborov, M. Sipser, L.G. Valiant, A. Wigderson, A.C. Yao.

These research symposia are organised under the auspices of the LMS and are supported by Research Grants from SERC. There may be a few places available for mathematicians not yet invited. Those interested should write for more information to the organisers marked * at the following addresses:

Dr J. Saxl, Department of Pure Mathematics and Mathematical Statistics, 16 Mill Lane, Cambridge, CB2 1SB;

Professor N.H. Bingham, Department of Mathematics, Royal Holloway and Bedford New College, Egham Hill, Egham, Surrey TW20 0EX.

Professor M.S. Paterson, Department of Computer Science, University of Warwick, Coventry CV4 7AL.

COMBINATORICS AND CONNECTIONISM

A colloquium on Combinatorics and Connectionism will be held at the London School of Economics on Wednesday 13 December 1989. The aim is to bring together mathematicians who are working on the application of combinatorial methods to connectionist models. It is intended that the talks will be mainly expository, but some account of current research will also be given. The programmes is as follows.

1100 – 1145 N.L. Biggs *Introductory Survey*

1150 – 1220 M.H.G. Anthony *Learning Formal Concepts*

1330 – 1430 P. Rowlinson *A Graph-Theoretic Model for Pattern Recognition*

1430 – 1500 P. Jeavons *Constraint Networks*

1530 – 1615 J. Shawe-Taylor *Building Symmetry into Feedforward Networks*

All lectures will be in Room S017 in the basement of St. Clements' Building, which is the building at the far end of Houghton Street from the Aldwych.

Coffee, lunch and tea will be available in the Brunch Bowl Cafeteria.

The meeting is supported by the London Mathematical Society and the British Combinatorial Committee.

EUROMATH PHASE 2

A grant of 1.5 M ECU (just over £1M) has just been granted by the relevant EEC body for Phase 2 of the EUROMATH project. Phase 1 of this project finished in June this year. The most important product of Phase 1 was the functional specification of a very user friendly package for the integration of mathematical document processing, databases and electronic mail. (See the announcement in No. 150 of the Newsletter, May 1988.) The original plan envisaged the building of a complete system from scratch. This would have required a much larger grant.

The project has therefore been redesigned to fit the amount of funds forthcoming without compromising any of the major initial objectives. It is hoped that this will be achieved by building on an existing package and by the involvement of academic rather than commercial institutes in many of the tasks. The EUROMATH software should be ready by the end of Phase 2 in 1992. Earlier this year Departments were sent a 'glossy' brochure and application forms to indicate interest in the development work to be carried out under Phase 2.

The mathematical community in this country is represented in the project by the UK Coordinating Committee chaired by Professor P. Vamos of Exeter University (Vamos.P@EX). We have initiated the setting up of an E-mail directory by the LMS; publishing a series of survey type articles to increase awareness in the existing facilities (see the second of these on E-mail in this issue) and organising a departmental E-mail address system. We are pushing hard for an early release of clear guidelines to departments on the forthcoming EUROMATH text standard and hardware requirements. We welcome inquiries, suggestions and comments. Other members of the Committee are:

F.W. Clarke (MAFRED@SWANSEA.PYRAMID),
R.M. Dicker (EMS Rep.) (R.DICKER@DUNDEE),
M.M. Dodson (MMD1@YORK.VAXA),
M.A.H. Maccallum (MM@QMC.MATHS),
C.J. Mulvey (MMFC6@SUSSEX.CLUSTER),
A.R. Pears (LMS Rep.),
J.S. Pym (PM1DTP@SHEFFIELD.PRIMEA),
A.G. Thomason (AGT2@CAM.PHX).

ELECTRONIC MAIL

This is a followup to the note on Electronic Mail (Email) in the September 1988 Newsletter where further details are given. Email is a system of sending messages using computer networks. Email messages can be sent within Britain by means of the Joint Academic Network or JANET. Other countries have equivalent systems. For instance Australia is served by the national network ACSnet, Canada by NETNORTH and Italy by INFNET. In the US, many universities are connected to the international network Internet, a collection of networks which includes ARPANET and NSFNet or to BITNET (Because It's Time Network). These systems are linked to Janet, thus extending the Email system to many countries.

Currently four gateway machines connect JANET to other international and national networks. It is just as easy to send international message as one within Britain, only the address is different and possibly a little longer. And, as for messages within Britain, there are no significant restrictions in length. Email is usually very fast. A message can arrive within minutes inside Britain and within hours abroad. A reply from the Continent or the US within an hour is not unusual.

The European Academic Research Network (EARN), which is connected to JANET by a gateway at Rutherford-Appleton Laboratories (UK.AC.EARN-RELAY), extends Email to all West European countries, North America and to the middle and Far East. Although the two networks are separately administered, BITNET and EARN are logically the same to the user within the UK and there is no difference between sending a message to say Bonn or to Berkeley. There is even access to Beijing through EARN (via a gateway in Karlsruhe); however this link might well be affected by the recent events in China.

This year a new transatlantic gateway (UK.AC.NSFNET-RELAY), based in London, came into operation and offers a fast and reliable service to the US Internet. One advantage of Internet is that it uses ASCII characters, so that TeX files can be sent over it in the same way as Email. Unfortunately EARN/BITNET uses IBM characters which are not fully compatible with TeX. As a result, unless special precautions are taken, there can be problems in sending TeX files over EARN/BITNET.

European academic networks are also accessible through a gateway at the University of London Computer Centre (UK.AC.EARN-RELAY) (Electronic Access Network – not to be confused with EARN) which in addition provides links to places such as Australasia, Yugoslavia, Brazil, and South Korea.

The present degree of duplication in the services provided by the UK gateways, as a result of other interconnections between the networks, gives a choice of routes for your mail. Experience or consultation with local experts is the best guide to an optimal route. The University of Kent provides a gateway (UK.AC.UKC) to hundreds of Unix

systems worldwide (uccp) but the sending site has to obtain authorisation before using this service and has to pay call charges.

It is worth emphasising that at present, except for uccp, Email is free to the user, even for international messages. (If a charge is introduced, for technical reasons Email will always be very cheap.) Access for academics is open and usually requires no authorisation or registration (apart from being a registered computer user).

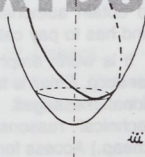
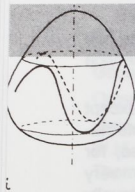
As mentioned in the preceding note, one of the drawbacks of Email is that there is no standard form of computer usernames and no (printed) directory is available as yet. Thus the username of the intended recipient of a message must first be known. As far as Britain is concerned, the LMS is planning to produce a directory of e-mail addresses. (Incidentally, a standard way of addressing Email is evolving; this standard is the reverse of the present JANET ordering!) Some people (e.g. Malcolm MacCallum mm@uk.ac.qmc.maths) hold international directories of individuals working in their area of mathematics. Malcolm MacCallum has also written guides to the use of Email. These are available through Email upon request. Although one is written for researchers in relativity and the other for staff at Queen Mary College, these guides are very informative and include helpful explanations about some of the technicalities which have been omitted here. The guides can be printed out by typing in a simple additional instruction to the computer when the message has been received and is being read.

It is often possible to find usernames of registered users through the POSTMASTER facility, which most of the computer systems connected to JANET have. To obtain a username, send an Email message in the usual way to the POSTMASTER at the recipient's institution giving the individual's name, initials and if possible department. The user name should be sent within one working day. Since this service is run by support staff and is not automatic, the request does not have to be in a standard format and any relevant information should be included.

A word of caution. Anyone intending to use Email for the first time should obtain the relevant user guides and documentation from their Computing Service. In fact anyone starting to use Email who is not familiar with computers should if possible get an expert to help them through the initial stages. Commands are not standard but vary from place to place and cannot be described here. They are however simple and easy to master and it will be found that Email is a very quick and convenient way of communicating with most of the world.

Finally it is a pleasure to acknowledge the unfailing help and friendly advice that I have received from the Computing Service of the University of York.

M M Dodson
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York YO1 5DD. (MMD1@UK.AC.YORK.VAXA)



TEXTBOOKS IN GEOMETRY

S. Gallot, University of Savoy, Chambéry; **D. Hulin**, University of Paris-Sud, Orsay; **J. Lafontaine**, University of Montpellier, France

Riemannian Geometry

Universitext

1987. XI, 248 pp. Softcover £ 16.00 ISBN 3-540-17923-2

This textbook covers the topics of differential manifolds, Riemannian metrics, connections, geodesics and curvature, with special emphasis on the intrinsic features of the subject. It contains numerous exercises with full solutions and a series of detailed examples which are picked up repeatedly to illustrate each new definition or property introduced.

M. Berger, Bures-sur-Yvette; **B. Gostiaux**, Le Perreux, France

Differential Geometry: Manifolds, Curves and Surfaces

Translated from the French by S. Levy

1988. XII, 474 pp. 249 figs. (Graduate Texts in Mathematics, Vol. 115) Hardcover £ 32.00 ISBN 3-540-96626-9

This book is an introduction to modern differential geometry. The authors begin with the necessary tools from analysis and topology, including Sard's theorem, de Rham cohomology, calculus on manifolds, and a degree theory. The general theory is illustrated and expanded using the examples of curves and surfaces. In particular, the book contains the classical local and global theory of surfaces, including the fundamental forms, curvature, the Gauss-Bonnet formula, geodesics, and minimal surfaces.

P. Tondeur, University of Illinois, Urbana, IL, USA

Foliations on Riemannian Manifolds

1988. XI, 247 pp. 7 figs. Softcover £ 19.00 ISBN 3-540-96707-9

Contents: Introduction. – Integrable Forms. – Foliations. – Flat Bundles and Holonomy. – Riemannian and Totally Geodesic Foliations. – Second Fundamental Form and Mean Curvature. – Codimension on Foliations. – Foliations by Level Hypersurfaces. – Infinitesimal Automorphisms and Basic Forms. – Flow. – Lie Foliations. – Twisted Duality. – A Comparison Theorem. – References. – Appendix: Bibliography on Foliations. – Subject Index. – Index of Notations.

J. M. Montesinos, University of Madrid, Spain

Classical Tessellations and Three Manifolds

Universitext

1987. XVII, 230 pp. 225 figs., incl. 29 Color Illustration Softcover £ 19.00 ISBN 3-540-15291-1

Contents: S^1 -Bundles Over Surfaces. – Manifolds of Tessellations on the Euclidean Plane. – Appendix A: Orbifolds. – Manifolds of Spherical Tessellations. – Seifert Manifolds. – Manifolds of Hyperbolic Tessellations. – Appendix B: The Hyperbolic Plane. – Source of the Ornaments. – References. – Further Reading. – Notes to Plate I. – Notes to Plate II.

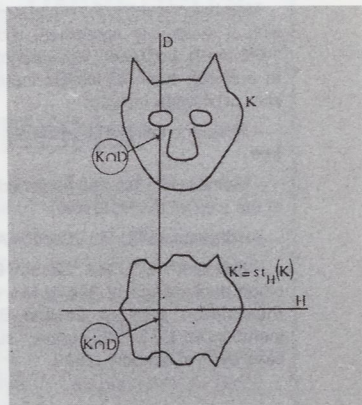
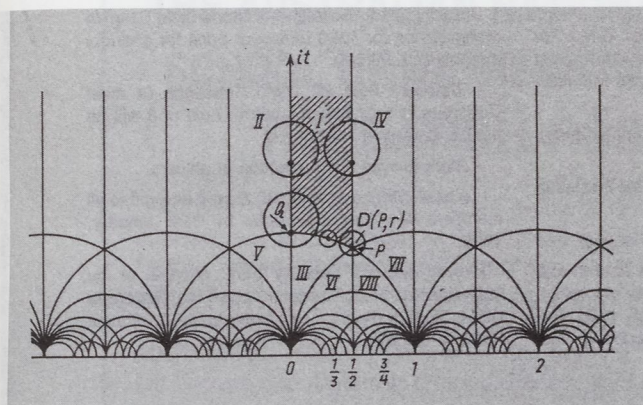
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V. V. Nikulin, I. R. Shafarevich, Moscow, USSR

Geometries and Groups

Universitext

1987. VIII, 251 pp. 159 figs.

Softcover £ 19.00 ISBN 3-540-15281-4

This is a quite exceptional book, a lively and approachable treatment of an important field of mathematics given in a masterly style. Assuming only a school background, the authors develop locally Euclidean geometries, going as far as the modular space of structures on the torus, treated in terms of Lobachevsky's non-Euclidean geometry. Each section is carefully motivated by discussion of the physical and general scientific implications of the mathematical argument, and its place in the history of mathematics and philosophy.

P. Samuel, University of Paris XI, Bourge-La-Reine, France

Projective Geometry

1988. X, 156 pp. 56 figs. (Undergraduate Texts in Mathematics) Softcover £ 22.00 ISBN 3-540-96752-4

From the reviews: "...The book of P. Samuel thus fills a gap in the literature. It is a little jewel. Starting from a minimal background in algebra, he succeeds in 160 pages in giving a coherent exposition of all of projective geometry ... one reads this book like a novel.

D. Lazard in Gazette des Mathématiciens

M. Berger, Bures-sur Yvette, France

Geometry I

Universitext

1987. XIII, 428 pp. 426 figs. Softcover £ 24.00

ISBN 3-540-11658-3

Geometry II

Universitext

1987. X, 406 pp. 364 figs. Softcover £ 24.00

ISBN 3-540-17015-4

This two-volume textbook appeals to the reader's intuition and systematically illustrates the mathematical facts with a large number of figures. For every topic an esthetically pleasing and easily stated theorem is proved, though the proof itself is sometimes surprisingly delicate. Many open problems and references to modern literature are given.

The solution to selected problems in this book can be found in its companion volume, "Problems in Geometry", also published by Springer.

E. G. Rees, University of Edinburgh, UK

Notes on Geometry

Universitext

1st ed. 1983. Corr. 2nd print. 1988. VIII, 109 pp. 99 figs.

Softcover £ 14.00 ISBN 3-540-12053-X

Contents: Introduction. – Euclidian Geometry. – Projective Geometry. – Hyperbolic Geometry. – Further Reading. – List of Symbols. – Index.

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8 Alexandra Rd., London SW19 7JZ, England

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UNIONE MATEMATICA ITALIANA

Membership dues for members of associations with a reciprocity agreement with the U.M.I. for 1990 are **It. L.40.000** (50% reduction with respect to ordinary dues for foreign members). Membership **privileges** include:

- Notiziario dell'U.M.I. (monthly + supplements), free

- Membership list, free (included in the first issue of the year of the Notiziario)

- Bollettino dell'U.M.I., Section A (3 issues), free

- Bollettino dell'U.M.I., Section B (4 issues) and other publications of the U.M.I. with discounts. Subscription price to Section B for 1990 (for members) is L.30.000; please, subscribe in this case by 31st January, 1990.

Subscription to Bollettino di Storia delle Scienze Matematiche for 1990 (discount price for ordinary members): L.32.000.

- Discount fees for U.M.I. meetings (a main Congress is held every 4 years; next one will be held in Catania in 1991).

- Right to vote in the election of officers

- A book (from a special list) is sent as a gift to all members who pay their dues by 31st January, 1990.

Money can be sent by bank cheque or by international postal order. Apply to Segreteria U.M.I. - Dipartimento di Matematica - Piazza Porta S. Donato, 5 - 40127 Bologna, Italy.

SOCIÉTÉ MATHÉMATIQUE DE FRANCE

Members of the London Mathematical Society may commence or continue their membership with the Société Mathématique de France under the Reciprocity Agreement between the two societies. The 1990 membership dues and publication are:

Membership (including Gazette) 200F

Officiel (surface mail) 100F

Officiel (air mail) 150F

Bulletin (with Mémoires) 150F

Bulletin + Mémoires 250F

Astérisque (4 issues) 220F

Astérisque (12 issues, from 169-180) 630F

Payments should be sent to the Société Mathématique de France, B.P. 126-05, 75226 Paris Cedex 05, France.

HET WISKUNDIG GENOOTSCHAP

The Dutch Mathematical Society, 'Het Wiskundig Genootschap' (WG) was established in 1778. It is the second oldest mathematical society in the world. The purpose is to promote mathematics as well as to encourage its study and its application. In fact the WG is the union of mathematicians in the Netherlands.

Members of the London Mathematical Society are welcome to join the WG as reciprocity members at the reduced subscription of Dfl. 40,-. Reciprocity members receive the periodicals 'Nieuw Archief voor Wiskunde' (3 issues per

volume, English) and 'Mededelingen van het Genootschap' (9 issues per volume, Dutch).

Further information about the WG can be obtained from the Secretary, Delft University of Technology, Department of Mathematics and Informatics, P.O. Box 356, 2600 AJ Delft. Applications of membership should be sent to the Treasurer, Mathematical Institute of the University, Budapestlaan 6, P.O. Box 80010, 3508 TA Utrecht, The Netherlands.

SÉMINAIRE DE MATHÉMATIQUES SUPÉRIEURES - NATO ADVANCED STUDY INSTITUTE

A Seminar on 'Shape Optimization and Free Boundaries' will be held at the Université de Montréal from June 25 - July 13, 1990. The Seminar is held with the support of NATO, the Ministry of Education of Québec, the Natural Sciences and Engineering Research Council of Canada, and the Université de Montréal.

The principal speakers are H. Brézis (Paris VI & Rutgers), J. Chadam (McMaster), M. Delfour (Montréal), A. Fasana (Florence), M. Fortin (Laval), O. Pironneau (INRIA & Paris VI), J. Sokolowski (Systems Res. Inst. Varsovie), I. Stakgold

(Delaware), R. Temam (Paris-Sud & Indiana at Bloomington), J.L. Vazquez (Madrid) and J.-P. Zolésio (Montpellier).

Partial financial assistance will be available for a certain number of participants. Priority will be given to graduate students. Requests for participation or financial assistance must be received before 9th February 1990. Further information is available from G. David, Secretary, Department of Mathematics & Statistics, Univ. de Montréal, C.P. 6128, Montréal, Qué., Canada H3C 3J7.

THE AUSTRALIAN NATIONAL UNIVERSITY

SCHOOL OF MATHEMATICAL SCIENCES

RESEARCH POSITIONS

Applications are invited from suitably qualified mathematicians for appointment to a number of full-time research positions as Postdoctoral Fellow, Research Fellow and Senior Research Fellow in Pure Mathematics within the research section of the School of Mathematical Sciences. The principal areas of research are: Operator Algebras; Semigroups and Mathematical Physics; Differential Geometry; Partial Differential Equations; Lie Groups and Algebraic Groups; Functional Analysis; Group Theory (with emphasis on computations and representations); Statistical Mechanics (particularly lattice models), and the senior researchers are: R.J. Baxter, L.G. Kovacs, M.F. Newman, R.W. Richardson, D.W. Robinson, L.M. Simon, and N.S. Trudinger. Other Sections of the School are also active in research in related areas of pure mathematics

No teaching is required, but some participation in advanced undergraduate courses may be available.

Applications from those able to take leave of absence from their own institutions will be welcomed.

Enquiries may be addressed to Dr M.F. Newman (Telephone 61 (0) 62 493630; e-mail address MFN102@Phys6.ANU@munni.oz); Facsimile 61 (0) 62 490759.

Closing date: 31 January 1990

Ref:SMS 25.10.1

SALARY: Senior Research Fellow A\$43,104 – A\$51,141 p.a.; Research Fellow A\$31,259 – A\$40,622 p.a.; Postdoctoral Fellow Grade 1 (fixed point) A\$27,139 – A\$30,882 p.a.

APPOINTMENT: Senior Research Fellow/Research Fellow up to three years, possibility of extension to five years; Postdoctoral Fellow normally two years; possibility of extension to three years.

APPLICATIONS should be submitted in duplicate to the Registrar, The Australian National University, GPO Box 4, Canberra ACT 2601, Australia, quoting reference number and including curriculum vitae, list of publications and names of at least three referees. The University reserves the right not to make an appointment or to appoint by invitation at any time. Further information is available from the Registrar, or from Appointments (37119), Association of Commonwealth Universities, 36 Gordon Square, London WC1H 0PF

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NATIONAL UNIVERSITY OF SINGAPORE

DEPARTMENT OF MATHEMATICS

Applications are invited for teaching appointments from candidates who are able to teach in one or more of the following areas:

Pure Mathematics
Applied Mathematics
Operational Research
Statistics

Candidates should possess a PhD degree in Mathematics or its equivalent.

Gross annual emoluments range as follows:

Lecturer S\$50,390 – 64,200
Senior Lecturer S\$58,680 – 100,310
Associate Professor S\$88,650 – 122,870
(STG£1.00 = S\$3.13 approximately)

The commencing salary will depend on the candidate's qualifications, experience and the level of appointment offered.

Leave and medical benefits will be provided. Depending on the type of contract offered, other benefits may include: provident fund benefits or an end-of-contract gratuity, a settling-in allowance of S\$1,000 or S\$2,000, subsidised housing at nominal rentals ranging from S\$100 to S\$216 p.m., education allowance for up to three children subject to a maximum of S\$10,000 per annum per child, passage assistance and baggage allowance for the transportation of personal effects to Singapore. Staff members may undertake consultation work, subject to the approval of the University, and retain consultation fees up to a maximum of 60% of their gross annual emoluments in a calendar year.

The Department of Mathematics is a department in the Faculty of Science. There are 8 faculties in the National University of Singapore with a current student enrolment of some 14,000. All departments are well-equipped with a wide range of facilities for teaching and research.

All academic staff have access to the following computer and telecommunication resources: an individual microcomputer (and IBM AT-compatible or Apple Macintosh); and IBM mainframe computer with 16 MIPS of computing power; and NEC SX supercomputer with 650 MFLOPS of computing power; departmental laser printers; a wide spectrum of mainframe and microcomputer software; voice-mail; BITNET to access academic institutions world-wide. In addition, a proposed campus network based on state-of-the-art optical fibre technology will be installed by 1990 to facilitate resource sharing and electronic communication for the academic community.

Application forms and further information on terms and conditions of service may be obtained from:

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Tel: (01) 235-4562

Enquiries may also be sent through BITNET to: **PERSDEPT @ NUSVM**, or
through **Telefax: (65) 7783948**



William Burnside (1852-1927) graduated second Wrangler and Smith's Prizeman from Cambridge in 1875, and stayed on as a tutor, specialising in hydrodynamics, until 1885 when he became Professor of Mathematics at Greenwich. Brought up in the Cambridge tradition of applied mathematics, he turned to pure mathematics with an important paper on automorphic functions in 1892, which led him to the pioneering studies first of discontinuous and later of finite groups for which he is chiefly remembered. He was elected an FRS in 1893. In 1899 he was awarded the De Morgan medal, and was the Society's twenty-second President, from 1906-1908.

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.

1989

DECEMBER

- 13 Combinatorics and Connectionism, London (166) (167)
- 14-19 European Women Mathematicians, Portugal (166)
- 15 Edinburgh Mathematical Society Meeting, Edinburgh (165)

1990

JANUARY

- 19 LMS Meeting, London
- 19 Edinburgh Mathematical Society Meeting, Edinburgh (165)

FEBRUARY

- 16 LMS Meeting, Bath
- 16 Edinburgh Mathematical Society Meeting, Edinburgh (165)

MARCH

- 9 Edinburgh Mathematical Society Meeting, Dundee (165)
- 13-16 Iranian Mathematics Conference, Iran (165)
- 16 LMS Meeting, London
- 18-24 Mathematische Gesellschaft Convention, West Germany (166)
- 26-30 Invited Lectures (160)

APRIL

- 1-14 Generators and Relations in Groups and Geometries, Italy (164)
- 2-6 British Mathematical Colloquium, East Anglia (166)
- 3-4 Mathematics in a Changing Culture, Glasgow (166)

MAY

- 4 Edinburgh Mathematical Society Meeting, Aberdeen (165)
- 18-19 2-day LMS Meeting, Sheffield
- 23-26 Computing and Information, Canada (166)

JUNE

- 2 Edinburgh Mathematical Society Meeting, St Andrews (165)
- 6-9 European Consortium for Mathematics in Industry, Finland (159)
- 11-14 XIV Rolf Nevanlinna Colloquium, Finland (162)
- 11-14 Hyperbolic Problems, Sweden (166)
- 12-15 Analysis and Optimization of Systems, France (161)
- 15 LMS Meeting, London
- 27-30 Algebraic Hyperstructures and Applications, Greece (162)

JULY

- 1-15 Adams Memorial Symposium, Manchester (163)
- 2-6 Australian Mathematical Society Annual Meeting, Australia (165)
- 3-6 Ordinary and Partial Differential Equations, Dundee (164)
- 8-12 Industrial and Applied Mathematics, U.S.A. (166)
- 9-11 New Trends in Systems Theory, Italy (162)
- 9-20 Geometry and Topology of Four-Manifolds, Canada (162)

AUGUST

- 21-29 International Congress of Mathematicians 1990, Japan (151) (165) (166)
- 21-29 Logic Conference, Japan (160)

SEPTEMBER

- 24-28 Structures in Mathematical Theories, Spain (166)

OCTOBER

- 19 LMS Meeting, London

NOVEMBER

- 16 LMS Meeting, London

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 01-437 5377, fax 01-439 4629, E-mail lms@uk.ac.kcl.cc.oak.