

# LMS NEWSLETTER

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No. 38

April 1977

## L.M.S. COMMITTEES AND REPRESENTATIVES

The various L.M.S. Committees and representatives appointed by Council are:

GENERAL PURPOSES COMMITTEE: President (Convenor), Treasurer, Librarian, Council Secretary, Meetings Secretary, Publications Secretary.

PUBLICATIONS COMMITTEE: Publications Secretary (Convenor), Editor and Secretary of each of the Journal, Bulletin and Proceedings.

DURHAM SYMPOSIA COMMITTEE: H. Halberstam (Convenor), T. J. Willmore, C. A. Rogers, J. F. Adams, P. M. Cohn, H. Crank.

FINANCE COMMITTEE: Treasurer (Convenor), President, Publications Officer, D. A. Brannan, C. T. C. Wall.

BULLETIN: D. E. Edmunds (Editor, from Jan. '77); R. H. Dyer (Secretary; '74- ).

PROCEEDINGS: G. R. Allan (Editor; '76- ); J. E. Roseblade (Secretary; '75- ).

JOURNAL: P. M. Neumann (Editor; '76- ); J. Wiegold (Secretary; '73- ).

TECHNICAL EDITORS: E. Crompton (J.L.M.S.); E. & P. Smith (B.L.M.S.); A. Sharp (P.L.M.S.).

REVIEWS EDITOR: C. B. Thomas ('76- ).

OBITUARIES EDITOR: J. V. Armitage ('73- ).

JOINT MATHEMATICAL COUNCIL: P. J. Higgins ('77- ).

MONOGRAPHS: P. M. Cohn & G. E. H. Reuter (Feb. '68-Dec. '77).

LECTURE NOTES: G. C. Shephard (Jan. '68-Dec. '77).

COUNCIL FOR NATIONAL ACADEMIC AWARDS: P. A. Samet ('75- ), D. B. Singmaster ('77- ).

RUSSIAN MATHEMATICAL SURVEYS: K. A. Hirsch ('60- ).

T.M.M.S. JOINT EDITOR: L. W. Longdon ('73- ).

R.S./I.M.A. JOINT COMMITTEE ON MATHEMATICAL EDUCATION: H. Halberstam (Jan. '77-Dec. '79).

ADVISORY BOARD OF WARWICK MATHEMATICS RESEARCH CENTRE: C. T. C. Wall (Oct. '75-Sept. '78).

BRITISH NATIONAL COMMITTEE FOR MATHEMATICS: C. T. C. Wall (Feb. '74-Dec. '81), W. H. Cockcroft (Jan. '76-Dec. '81), H. Halberstam (Jan. '73-Dec. '78).

BRITISH NATIONAL COMMITTEE FOR THEORETICAL AND APPLIED MATHEMATICS: A. B. Tayler.

BRITISH MATHEMATICAL COLLOQUIUM: P. McMullen, A. W. Goldie.

U.K. PERIODICALS' BACKLOGS: C. T. C. Wall ('74- ).

TRUSTEE ON APPLIED PROBABILITY TRUST: G. E. H. Reuter.

ARCHIVES: Librarian.

PHOTOGRAPHIC ARCHIVES: D. G. Kendall ('74- ).

NEWSLETTER: B. E. Johnson ('75- ).

PERIODICAL EXCHANGES COMMITTEE: Librarian, Publications Secretary.

EDUCATION COMMITTEE: H. B. Griffiths (Convenor), M. F. Atiyah, H. Halberstam, C. P. Rourke, C. T. C. Wall, M. Rayner.

COLLINGWOOD PRIZE: E. J. Squires.

OPEN UNIVERSITY COMMITTEE ON MATHEMATICS FILMS: D. B. Singmaster, I. M. James, M. Rayner ('76- ).

CONFERENCE SUPPORT COMMITTEE: C. T. C. Wall (Convenor), T. J. Willmore, J. D. M. Wright.

1977 INSTRUCTIONAL CONFERENCE COMMITTEE: M. F. Atiyah (Convenor), C. T. C. Wall (Council representative), I. G. Macdonald, N. J. Hitchin, G. Luke.

1977 MULTIVARIATE APPROXIMATION: I. M. James & A. B. Tayler.

NEWSLETTER EDUCATIONAL SUPPLEMENT: H. B. Griffiths.

## DATES OF SOCIETY MEETINGS

Friday, 20 May 1977, University College, Bangor.

Friday, 17 June 1977, Burlington House, Professor J. K. Moser (Hardy Lecturer) and Professor A. Baernstein.

Friday, 21 October 1977, Burlington House.

Friday, 18 November, Burlington House, Annual General Meeting.

Friday/Saturday, 16/17 December 1977, Trinity College, Cambridge, Hardy Centenary Meeting.

Friday, 20 January 1978, Burlington

House.

Friday, 17 March 1978, Burlington House.

Friday/Saturday, 19/20 May 1978, Gregynog, Powys, weekend meeting.

Friday, 16 June 1978, Burlington House, Whitehead meeting.

London meetings will be held in the Geological Society's Rooms, Burlington House, Piccadilly. Council meetings will be held in conjunction with all the above London meetings and the meeting at Bangor. Council will also meet on 12 May 1978.

D. B. SINGMASTER

## MEMBERSHIP SUBSCRIPTIONS

Members are reminded that subscriptions for the 1976/7 session were due on 1 November. Members who have not yet paid their subscriptions are asked to do so with-

out further delay to avoid any interruption in the supply of periodicals.

I. M. JAMES

## ADMINISTRATIVE SECRETARY

Mrs. Shalit is retiring on 1 April after eleven years as Administrative Secretary. Her successor is Mrs. Eileen Simpson, until recently Secretary of the Bedford

College Mathematics Department. Members are asked to note that in future the office will normally be manned only on Tuesdays and Fridays.

I. M. JAMES

## L.M.S. DUPLICATE PERIODICALS

As a result of the Library agreement with University College London, the L.M.S. has available a number of periodicals which duplicate those held by U.C.L. Some of these are to be lent to Durham, to be accessible to participants at the L.M.S. Symposia; the L.M.S. Council invites

applications from any other institutions interested in receiving a similar loan. A list of the duplicate periodicals is available from the L.M.S. Librarian at U.C.L., to whom all correspondence should be directed.

P. McMULLEN

## IRISH MATHEMATICAL SOCIETY

An Irish Mathematical Society was recently formed and its first annual general meeting was held in Trinity College, Dublin on 20 December 1976. The following officers were elected:—

President : F. Holland (Cork)  
Vice-President : M. Hayes (U.C. Dublin)  
Secretary : T. Hurley (U.C. Dublin)  
Treasurer : T. T. West (Trinity,  
Dublin)

The other members of the committee are: R. Flood (Kevin Street College of Technology, Dublin); T. Laffey (U.C. Dublin); J. Lewis (Dublin Institute for Advanced Studies); P. McGill (Coleraine); M. Newell (Galway); R. Smyth (Belfast).

The aim of the society is to foster the development of Mathematics in Ireland. In addition to arranging lectures and conferences, the society intends to produce a newsletter which will be circulated to members, and which will contain material relevant to mathematicians in Ireland. In particular, it will include information on mathematical conferences and meetings abroad. Persons organising such conferences are requested to forward information on them to the Secretary for inclusion in the newsletter. The mailing address of the society is:— *Dept. of Mathematics, University College, Dublin 4, Ireland.*



## EUROPEAN SCIENCE FOUNDATION

Various initiatives in the early seventies aiming at a better coordination of pure research and a closer contact between research councils in different countries led in November 1974 to the formal creation of the European Science Foundation (E.S.F.).

The E.S.F. is a non-governmental organisation and its members are research councils and academies. The present membership comprises 45 organisations in 16 countries. The British Member Organisations are, for instance, the British Academy, the Royal Society and the research councils for agriculture, medicine, natural environment, science and social science. The Commission of the European Communities is entitled to send a representative with an advisory voice to meetings of the Foundation.

Being so newly created, the E.S.F. is of course only in the beginning of its activities. Its Statute is quite flexible and it has not yet been necessary to lay down any definite rules of procedure. So far, the natural way when dealing with a certain scientific area or a certain project proposed for European collaboration has been a preliminary secretariat inquiry followed by a deeper investigation of the matter by a committee or working group. Such studies normally result in recommendations which can be examined, approved and endorsed by the E.S.F. The implementation, however, of the recommendations can often be left to those directly concerned. The role of the E.S.F. in such cases is advising and sometimes persuading rather than acting.

It is thus through the quality of its advice that the Foundation tries to fulfil its principal objects, as laid down in the Statute:

- (a) to advance cooperation in basic research;
- (b) to promote mobility of research workers;
- (c) to assist the free flow of information and ideas;
- (d) to facilitate the harmonisation of the basic research activities supported by Member Organisations.

According to the Statute the Member Organisations can in principle also use the E.S.F. for common financial support of what is called an "Additional Activity" which might be the carrying out of a research programme or even the running of an institute, but so far the examples of this kind of direct E.S.F. involvement are rare. Whereas all Member Organisations contribute to the general budget of the Foundation (3 million French Francs for 1977), the costs for the running of an Additional

Activity have to be borne entirely by those Organisations which have decided to participate in that Activity.

The Secretariat of the Foundation in Strasbourg is quite small, but through its Member Organisations the E.S.F. can draw on the expert knowledge of the entire scientific community in the countries represented in the Foundation. During its first years of existence, the E.S.F. has, however, embarked upon only a limited number of fields, and mathematics was in fact one of the first.

The aims of the Foundation in this area were to help in promoting advanced training of young mathematicians, especially in fields where development of mathematical research is recent, and to promote in various ways the interaction between mathematicians of different countries and with different specialities. The main tool used by the Foundation in trying to reach these aims has been an ad hoc committee with mathematicians from almost every country represented in the E.S.F. The Chairman of the committee is Professor M. F. Atiyah (Oxford).

So far this E.S.F. Mathematics Committee has concentrated on a few well-defined matters. The first proposal from the committee concerned the Institut des Hautes Etudes Scientifiques (I.H.E.S.), an independent institute devoted mainly to pure mathematical research and playing a leading role in Europe as a focus for mathematicians from various countries. Following a proposal of the mathematics committee, the E.S.F. Assembly (which is the principal organ of the Foundation) agreed in October 1976 that support of the international scientific programme of the I.H.E.S. be adopted as an Additional Activity of the Foundation. This means that those E.S.F. Member Organisations which participate in this programme use the E.S.F. as a forum where their views on budgets, financial contributions etc. can be discussed and coordinated. The annual subvention to this programme from the Science Research Council in the U.K. is at present £40,000.

The second main issue considered by the mathematics committee has been the possible creation of a European Federation of Mathematical Societies. Such a body would, in the view of the Committee, strengthen the community sense of European mathematicians by providing a forum for exchange of information, for the co-ordination of conferences, the encouragement of European fellowship schemes, the



circulation of a newsletter, etc. The recommendation of the mathematics committee was favourably received by the E.S.F., and the Executive Council (who under the Assembly is responsible for the management of the Foundation) agreed to convene a meeting with representatives of national mathematical societies in order to discuss and possibly decide upon the proposed Federation. This meeting took place on 25 February 1977. The L.M.S. was represented by Professor I. M. James.

One project which has been started by the E.S.F. as a pilot activity with the hope that

it later would be taken over by the proposed Federation is the compilation and distribution of an information leaflet listing coming mathematical meetings (see L.M.S. Newsletter of November 1976). This leaflet is being sent to national mathematical societies and it is hoped that through them the information will be made generally available.

The mailing address of the European Science Foundation is 1 quai Leyay-Marnésia, 67000 Strasbourg.

M. O. OTTOSSON

### ATM FILM PAMPHLET

The Association of Teachers of Mathematics has just produced a new edition of their pamphlet "List of Mathematical Films and Film Loops". This gives details of 251 16mm films and 373 8mm film loop cassettes and mentions 222 Open University

films. Names and addresses of 42 distributors are given. It is available for £1.15 (postage included) from A.T.M., Market Street Chambers, Nelson, Lancs., BB9 7LN.

D. B. SINGMASTER

### O.U./B.B.C./L.M.S. FILM GROUP

A joint Open University/B.B.C./L.M.S. film committee has been formed to encourage the use of mathematical films and to gather and distribute information on films. We would be interested in hearing from anyone with information about or experience in using mathematical films. We hope to arrange a one day conference on films in Autumn, 1977. At the moment the

committee members are: R. Wilson, R. Duke, P. Thomas and R. Knight of the O.U., J. Richmond, J. Koumi and D. Saunders of the B.B.C. and D. Singmaster, I. James and M. Rayner of the L.M.S. Communications can be addressed to: D. B. Singmaster, Poly. of the South Bank, London, SE1 0AA or any other committee member.

### ROYAL SOCIETY OF EDINBURGH PRIZES

The Council of the R.S.E. has recently announced the award of two of its Prizes as follows:

- (1) The Gunning Victoria Jubilee Prize for 1972/76 to Professor Arthur Erdélyi, Department of Mathematics, University of Edinburgh, for his distinguished contributions to mathematical analysis and in particular to the theory of special functions.

- (2) The Makdougall Brisbane Prize for the 59th Biennial Period, 1974/76, to Professor F. V. Atkinson, Hon. F.R.S.E. Department of Mathematics, University of Toronto, for his contributions published in the Society's Proceedings during the period of the award and in particular for his contribution entitled "Limit-n criteria of integral type".

W. N. EVERITT

### CATASTROPHE THEORY IN THE PHYSICAL SCIENCES

A Symposium on Catastrophe Theory in the Physical Sciences, organised by the I.M.A., will be held in University College, London on 27 May 1977. Speakers and chairmen will include M. V. Berry (Bristol), D. R. J. Chillingworth (Southampton), M.

M. Dodson (York), J. F. Nye (Bristol), I. R. Porteous (Liverpool), J. M. T. Thompson (U.C. London), E. C. Zeeman (Warwick). Further details can be obtained from the I.M.A., Maitland House, Warrior Square, Southend, Essex SS1 2JY.

## RESEARCH ASSOCIATE IN STATISTICS

Applications are invited for a post-doctoral Research Associate to work on the statistical analysis of categorical data in the Department of Statistics, University of Newcastle upon Tyne. The investigation is supported by S.R.C. Previous experience of Statistics is not essential. Candidates may wish to convert at research level from other subjects such as Pure Mathematics.

The appointment would normally be tenable for two years commencing 1 October 1977.

Applications should be submitted with curriculum vitae and the names of two referees to Professor R. L. Plackett, Department of Statistics, The University, Newcastle upon Tyne, NE1 7RU, from whom further particulars may be obtained.

## SUSSEX CONFERENCE ON GEOMETRIC TOPOLOGY

The second University of Sussex Conference on Geometric Topology will be held on 8–11 July 1977 at the White House Conference Centre, Chelwood Gate.

Topics will include knots and links, 3 and 4-dimensional manifolds, surfaces and

geometric topology. The cost will be about £40 for resident members and £25 for non residents.

Further details can be obtained from R. A. Fenn, Mathematics Division, University of Sussex, Brighton, BN1 9QH.

## AN APPEAL

Universities of developing countries are generally able to subscribe to only a very limited number of scientific journals. Steeply rising prices often compel them to reduce their subscriptions from one year to the next. Many libraries and science departments of developing countries will be grateful to receive donations of back-volumes of journals that individuals or

institutions may like to dispense with. The International Centre for Theoretical Physics, Trieste, is willing to help establish contacts among possible donors and recipients, as far as journals of physics/mathematics are concerned. Please address enquiries and offers of donation to: Professor L. Fonda, International Centre for Theoretical Physics P.O. Box 586, Trieste I-34100 Italy.

## OXFORD: JUNIOR LECTURESHIP IN MATHEMATICA

Applications are invited for a Junior Lectureship in any branch of Pure or Applied Mathematics. The appointment is for a period of three years from 1 October 1977 (or as soon as possible thereafter) and is not renewable. Salary will be on the scale £3271+£101 to £3372+£221 to

£3593+£240 to £3833.

Further details may be obtained from the Secretary of Faculties, University Offices, Wellington Square, Oxford, OX1 2JD, to whom applications (including the names of two referees) should be sent not later than 31 March 1977.

## BOOKS RECEIVED FOR REVIEW IN THE *BULLETIN*

Lecture Notes in Computer Science. Number 43. (Springer Verlag).

Classical Analysis and Functional Analysis. Einar Hille, pp. 708. £21.00 (MIT Press, 1975).

Finite Markov Chains. (2nd Print), J. Kemeny, J. Snell, pp. 210. \$14.80 (Springer Verlag 1976).

Stability of Fluid Motions, I. D. D. Joseph, pp. 282. \$39.80 (Springer Verlag 1976).

An Invitation to  $C^*$  Algebras. W. Arveson, pp. 106. \$12.80 (Springer Verlag 1976).

Algebraic Theories. E. Manes, pp. 356. \$22.20 (Springer Verlag 1976).

Applied Functional Analysis. A. V. Balakrishnan, pp. 309. \$19.80 (Springer Verlag 1976).

Modern Numerical Methods for Ordinary Differential Equations. Edited by G. Hall, J. M. Watt, pp. 336. £9.75 (Oxford UP 1976).

The Shape of Space. G. Nerlich, pp. 280. £8.50 (Cambridge UP 1976).

Pattern Synthesis. U. Grenander, pp. 509. \$14.80 (Springer Verlag 1976).

Managing Mathematically. T. Green and J. Webster, pp. 205. £4.95 (Macmillan 1976).

Finite Free Resolutions. D. G. Northcott, pp. 271. £12.50 (Cambridge UP 1976).

Proofs and Refutations. I. Lakatos, pp. 174. Hardcover £7.50, Paper £1.95 (Cambridge UP 1976).

Graph Theory, 1736–1936. N. Biggs, E. K. Lloyd, R. Wilson, pp. 239. £9.50 (Clarendon Press, Oxford UP, 1976).



- Introduction à la Théorie des Surfaces de Riemann.** J. Guenot, R. Narasimhan, pp. 205. SF35 (Enseignement Mathématique, Genève.).
- Elementary Differential Equations with Linear Algebra.** R. L. Finney, D. R. Ostberg, pp. 515. £10·50 (Addison Wesley Inc., 1976).
- Introduction to Finite Geometries.** F. Kartesz, pp. 500. \$39·75 (North Holland Publ. Co. 1976).
- Linear Algebra with Geometric Applications.** L. E. Mansfield, pp. 512. SF50 (Marcel Dekker Inc. 1976).
- Trends in Applications of Pure Mathematics to Mechanics.** Ed. by G. Fichera, pp. 459. £19·50 (Pitman Publ. Ltd., 1976).
- Lectures in Abstract Algebra I: Basic Concepts, Corrected Printing.** N. Jacobson, pp. 217. \$10·80 (Springer Verlag 1976).
- Spectral Synthesis.** J. J. Benedetto, pp. 278. £16·75 (Academic Press 1976).
- Lecture Notes in Mathematics.** Ed. by A. Dold and B. Eckmann, Vols. 525–528, 531, 532, 534–544. Springer Verlag, (Berlin–Heidelberg–N).
- Lecture Notes in Physics.** Managing Ed. W. Beiglbock, Vols. 53 and 54. (Springer Verlag).
- Lecture Notes in Economics and Maths Systems.** Mng. Editors, M. Beckmann and H. P. Künzi, Vols. 129–131, 133. (\$7·40) Springer Verlag).
- Matroid Theory.** D. J. A. Welsh, pp. 433. £15·00 (Academic Press Inc.).
- Chemical Applications of Graph Theory.** Ed. by A. T. Balaban, pp. 400. (£14·50 Academic Press Inc.).
- Exercises in Set Theory.** L. E. Sigler. \$3·95 (Springer Verlag).
- Scientific Work of René Descartes.** J. F. Scott, pp. 211. £8·50 (Taylor and Francis Ltd.).
- Rings of Continuous Functions.** L. Gillman and M. Jerison, pp. 300. \$14·80 (Springer Verlag).
- Hopf Bifurcation and its Applications.** Ed. by F. John et al., pp. 408. £14·80 (Springer Verlag).
- Denumerable Markov Chains.** J. G. Kemeny, J. L. Snell and A. W. Knapp, pp. 484. \$16·80 (Springer Verlag).
- Set Theory.** K. Kuratowski and A. Mostowski, pp. 560. \$29·00 (North Holland Pub. Co.).
- Ring Theory.** C. Faith, pp. 302. \$40·20 (Springer Verlag).
- Math. Ideas, Modelling and Applications.** Z. A. Melzak, Vol. 2, pp. 350. £21·25 (J. Wiley and Sons Ltd.).
- Topics in Number Theory.** Ed. by P. Turan, pp. 350. \$48·00 (N–Holland Pub. Co.).
- Non Linear Operators and Differential Equations in Banach Space.** R. H. Martin, Jr. pp. 490. £21·20 (J. Wiley and Sons Ltd.).
- Matrix Theory and its Applications.** N. J. Pullman. SFRs.72 (Marcel Dekker Inc.).
- Modular Functions and Dirichlet Series in Number Theory.** T. M. Apostol, pp. 198. \$14·80 (Springer Verlag).
- Calculus with Applications and Computing.** I. P. Lax et al. pp. 513. \$14·80 (Springer Verlag).
- Geometry of Spheres in Normed Spaces.** J. J. Schaffer. pp. 240. SFRs.82 (Marcel Dekker Inc.).
- Topology of Stiefel Manifolds.** I. M. James, pp. 168. £3·95 (Cambridge UP).
- Functional Analysis: Proc. Brazilian Math Society Symposium.** Ed. by D. G. de Figueiredo, pp. 336. SFRs.82 (Marcel Dekker Inc.).
- Introduction to Math Theory of Finite Elements.** J. T. Oden and J. N. Reddy, pp. 380. £17·50 (J. Wiley and Sons Ltd.).
- Stability of Fluid Motions II.** D. D. Joseph, pp. 274. \$39·80 (Springer Verlag).
- Ordered Vector Spaces and Linear Operators.** R. Critescu, pp. 300. £14·95 Abacus Press (Tunbridge Wells).
- Introduction to Semi-Group Theory.** J. M. Howie, pp. 272. £9·80 (Academic Press Inc.).
- Function Theoretic Methods in Differential Equations.** Ed. by R. P. Gilbert and R. J. Weinacht, pp. 311. £9·50 (Pitman).
- Solution of Boundary Value Problems by the Method of Integral Operators.** D. L. Cotton, pp. 150. £5·60 (Pitman).
- Quantum Theory of Open Systems.** E. B. Davies, pp. 200. £7·50 (Academic Press Inc.).
- Adaptive Information Processing.** J. R. Sampson, pp. 214. \$14·80 (Springer Verlag).
- Non-Linear Functional Analysis and Differential Equations.** Ed. by L. Cesari, pp. 368. SFRs.98 (Marcel Dekker Inc.).
- Taylor Expansions and Catastrophes.** T. Poston and I. Stewart, pp. 168. £5·90 (Pitman).

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