LMS NEWSLETTER

No. 77

March 1981

DATES OF SOCIETY MEETINGS

Friday, 20 March 1981, Burlington House (H. C. Longuet-Higgins and K. W. Morton).

Friday, 15 May–Saturday, 16 May 1981. Two-day meeting at Leeds.

Friday, 19 June 1981, Burlington House.

Friday, 16 October 1981, Burlington House.

Friday, 20 November 1981, Burlington House (A.G.M.)

R. A. BAILEY

LMS TWO-DAY MEETING AT LEEDS

The meeting will begin at approximately 2 p.m. on Friday, 15 May 1981, and continue on Saturday, at 9.30 a.m. The LMS meeting is expected to finish after lunch on Saturday. However, the British Logic Colloquium is arranging a meeting on related topics on the Saturday afternoon, 16 May 1981, and LMS members are invited to stay for that if they wish.

The following have accepted invitations to speak (titles to be announced, but all related to the theme of Ring Theory and Logic): L. W. Small (San Diego); A. J. Macintyre (Yale); D. S. Scott (Oxford); C. M. Ringel (Bielefeld). Speakers for the British Logic Colloquium meeting will be P. C. Eklof (Irvine, visiting Bedford College) and P. Freyd (Pennsylvania, visiting Cambridge).

A dinner for the participants will be held on the Friday evening. Further details, including hotel information, will appear in the April *Newsletter*.

F. R. DRAKE
A. W. GOLDIE

EURONEWS

A European Mathematical Newsletter is to be published twice a year, in April and September. Information to be included in the Newsletter should be sent to Professor M. Barner, Mathematisches Forschungsinstitut Oberwolfach, Alberstrasse 24, D-7800 Friburg i. Br., German Federal Republic.

WORKSHOP ON STOCHASTIC DIFFERENTIAL EQUATIONS

A workshop will be held at the University of Warwick from 6 April to 10 April 1981. It is designed for people with some commitment in the general field of stochastic differential equations or their applications (e.g. in control, filtering, mathematical physics, differential geometry), so that the expertise, techniques, and problems from the different areas can be shared. Graduate students will be welcome. Further details from K. D. Elworthy, Mathematics Institute, University of Warwick, Coventry CV4 7AL.

DETERMINISTIC AND STOCHASTIC SCHEDULING

An Advanced Study and Research Institute on Theoretical Approaches to Scheduling Problems will be held in Durham, England, from 6 July to 17 July 1981. The Institute is sponsored by the NATO Advanced Study Institutes Programme and Systems Science Panel, by The Institute of Mathematics and Its Applications, and by the Mathematisch Centrum, Amsterdam. Lecturers include M. A. H. Dempster, E. Gelenbe, E. L. Lawler, J. K. Lenstra, A. H. G. Rinnooy Kan (Program Committee), E. G. Coffman, Jr., M. L. Fisher, J. C. Gittins, S. M. Ross, L. E. Schrage and G. Weiss. Further information can be obtained from J. K. Lenstra and A. H. G. Rinnooy Kan, c/o Econometric Institute, Erasmus University, P.O. Box 1738, 3000 DR Rotterdam, The Netherlands.

SRC MATHEMATICS COMMITTEE

The current problems of the SRC Mathematics Committee can be summarised in one word: money. Recent cutbacks in public expenditure have inevitably reduced the support available for research and training in mathematics, as in the other sciences.

Taking research first, for the first time in many years the Science Board of the SRC and its committees (of which the Mathematics Committee is one) were unable to fund all applications for research grants in 1979–80 which the subject committees recommended as being of the highest quality. This year also the situation is unlikely to be any better; the Science Board is short of money, largely as a result of decisions taken several years ago to set up so-called "central facilities" such as the SRS (Synchrotron Radiation Source) at Daresbury and the SNS (Spallation Neutron Source) at Culham. Equipment and services have been ordered and delivered, and the bills have to be paid. Of course these activities are of little or no relevance to mathematics, except in their financial implications; they form a substantial proportion of the total expenditure of the Science Board and therefore restrict the funds available for small-scale research of the sort supported by the Mathematics Committee. We hope, however, that the position will gradually improve in the next year or two, and it should be said that the Science Board and all the subject committees regard the provision of funds for research grants as their highest priority.

The Mathematics Committee supports postgraduate training in two ways: through Advanced Course Studentships and Research Studentships. Here again the picture is one of escalation in demand coupled with contraction of supply. In particular, the total number of Advanced Course Studentships available to the Science Board as a whole has been cut by 20%; however, the Mathematics Committee's share of that cut is less, namely 10%, and we hope to be able to support at any rate the vocationally-oriented Advanced Courses, such as those in operational research, statistics and numerical analysis, at levels not dramatically lower than last year.

With regard to research studentships, the Committee is in the unenviable position of having to allocate about 120 studentships among about 95 departments which apply for them, and there is no prospect that the situation will improve. We are not satisfied that our current methods of allocation produce the best outcome in these straitened circumstances, and the Committee has recently devoted a good deal of time and thought to alternative methods. It is probable that the system will be changed next year.

There are other aspects of the work of the Committee which I have not touched on in this brief article, for example the Panels which review advanced courses recognised by the Committee, and the various types of Fellowships (post-doctoral, Advanced, Senior) funded by the SRC. More details of all these activities may be found in the Review of Activities of the Mathematics Committee; each department should have a copy, and additional copies can be obtained on request from the Secretariat of the Mathematics Committee (P.O. Box 18, Swindon SN2 1ET).

I. G. MACDONALD

NUMERICAL METHODS IN FLUID MECHANICS

The GAMM Committee for Numerical Methods in Fluid Mechanics, in co-operation with the Office National d'Etudes et de Recherches Aérospatiales (ONERA), is organising the Fourth GAMM Conference on Numerical Methods in Fluid Mechanics. Date: 7–9 October 1981. Place: Ecole Nationale Supérieure de Techniques Avancées, 32 Bd Victor, Paris 15e, France.

The conference is intended to bring together scientists who are working on the application or the theory of numerical methods in fluid mechanics. The main objective is to foster exchanges between the various fields of development of computational fluid dynamics such as Aerodynamics, Hydrodynamics, Astrophysics, Biology, Meteorology, Nuclear Reactor Technology, Oceanography, etc. About 30 papers will be presented. The duration of each presentation will be 20 min. plus 10 min. for discussion. Special sessions will be held for the discussion of problem areas which have been treated in GAMM Workshops. Conference language is English.

Further details may be obtained from the GAMM Committee at the address given above.

AUSTRIAN MATHEMATICAL CONGRESS

The Tenth Austrian Mathematical Congress will be held in Innsbruck, 13–18 September 1981. The main speakers will include Professors Bauer (Erlangen), van Lint (Eindhoven), Barlotti (Bologne), Pietsch (Jena). Further details may be obtained from Professor Dr. Gilbert Helberg, Institut für Mathematik und Geometrie, Technische Fakultät der Universität Innsbruck, A-6020 Innsbruck, Technikstrasse 13, Austria.

6th SYMPOSIUM ON OPERATIONS RESEARCH

The Society for Mathematics, Economics and Operations Research Inc. is holding the 6th Symposium on Operations Research at the University of Augsburg from the 7–9 September 1981. This symposium will give theoretical and practical OR specialists an opportunity to discuss problems and the results of research formally as well as informally.

The topics of the symposium will be: Linear and Nonlinear Programming, Dynamic Programming, Stochastic Optimization, Control Theory, Vector Optimization, Integer Programming, Combinatorial Optimization, Graphs, Matroids, Networks, Algebraic Methods in Optimization, Computer Science, Analysis of Algorithms, Complexity Theory, Data Structures, Data Bases, Computer Models, Distributed Systems, Nonsequential Processes, Data Analysis, Stochastic Processes, Queuing Theory, Simulation, Statistical Decision Theory, Quality Control Econometrics, Decision and Utility Theory, Mathematical Economics and Equilibrium Theory, Game Theory, Production Theory, Inventory Theory, Renewal Theory, Reliability, Financial Planning, Location and Allocation Models, Applications in Management Science, Applications in Computer Science.

For further information and preliminary registration please write to Institut für Statistik und Mathematische Wirtschaftstheorie, Universität Augsburg, Memminger Str. 14, 8900 Augsburg, W. Germany.

BRITISH COMBINATORIAL CONFERENCE

The Eighth British Combinatorial Conference will be held at University College, Swansea, 20–24 July 1981. The principal lecturers will be: L. Babai (Hungary), L. Beineke (U.S.A.), B. Bollobás (Cambridge), R. L. Graham (U.S.A.), J. McWilliams (U.S.A.), F. C. Piper (London), R. W. Robinson (Australia), G. C. Shephard (E. Anglia). Details and application forms may be obtained from H. N. V. Temperley, Department of Applied Mathematics, University College, Swansea SA2 8PP.

CHAOS

The 1981 Les Houches Summer School, entitled Chaotic Behaviour of Deterministic Systems, will take place from 29 June to 31 July 1981. Subjects to be discussed include: non-linear dynamics, bifurcations, strange attractors, intermittence; applications to various fields of mechanics (celestial and fluid dynamics, turbulence), of physics (plasmas, ergodicity, accelerator design), of engineering, meteorology, population dynamics, etc. A varied audience is expected, including participants at pre- and post-doctoral level working either on the theory or on applied problems in any field of sciences, from mathematical, numerical, experimental or technical viewpoints.

The Main Lecturers will be D. V. Anosov, V. I. Arnold, M. V. Berry, M. Hénon, D. D. Joseph, A. Katok, O. E. Lanford III, M. Misiurewicz, J. Moser, S. Newhouse, Ya. G. Sinai.

The summer school of Les Houches is an institute affiliated with the Grenoble University, and this session is an Advanced Study Institute of the scientific affairs division of NATO. The scientific directors are G. Iooss and R. H. G. Helleman. Established in 1951, the school occupies a group of mountain chalets surrounded by meadows and woods, located in the French Alps near Chamonix, facing Mont Blanc. Accommodation and meals are provided within the school for both participants and lecturers.

Additional information and application forms may be obtained from: Ecole d'Eté de Physique Théorique, 74310 Les Houches, France.

BOOKS RECEIVED FOR REVIEW IN THE *BULLETIN*

Complimentary copies of the books listed below have been received from their publishers by the Society. Those for which the *Bulletin* is unable to publish a review will be lodged in the Society's Library at University College, London, where they are available for inspection and use by members.

J. Franklin: Methods of mathematical economics, pp 297, DM 45; U.S. $26·60 (Springer).

K. A. Ross: Elementary analysis: The theory of calculus, pp 264, DM 38; U.S. $22·50 (Springer).

J. E. Fenstead: General recursion theory: an axiomatic approach, pp 225, DM 78; U.S. $46·10 (Springer).

H. Lüneburg: Translation planes, pp 278, DM 54·50; U.S. $30·10 (Springer).

F. R. Drake & S. S. Wainer (Eds.): Recursion Theory: its Generalisations and Applications, pp 319, £10·95 (Cambridge U.P.).

J. A. Paulos: Mathematics and Humor, pp 116, U.S. $12·95 (U. of Chicago Press).

P. Fong & W. J. Wong (Eds.): Richard Brauer: Collected Papers, Vol. I, pp 615, Vol. II, pp 586, Vol. III, pp 689, £34·10 per vol. (M.I.T. Press).

I. Vaisman: Foundations of Three-Dimensional Euclidean Geometry, pp 268, S.Fr. 80 (Marcel Dekker).

A. C. Bajpai, L. R. Mustoe & D. Walker: Specialist Techniques in Engineering Mathematics, pp 401, £19·50 (Wiley).

A. T. Winfree: The Geometry of Biological Time, pp 530, DM 59·50; U.S. $32·80 (Springer).

J. D. Dollard & C. N. Friedman: Product Integration with Applications to Differential Equations, pp 253, £13·50 (Addison-Wesley).

E. Abe: Hopf Algebras, pp 284, £16 (Cambridge U.P.).

C. C. Carico & I. Drooyan: Analytic Geometry, pp 310, £8·30 (Wiley).

B. R. McDonald (Ed.): Ring Theory and Algebra III, pp 448, S.Fr. 115 (Marcel Dekker).

J. S. Golan: Structure Sheaves over a Noncommutative Ring, pp 192, S.Fr. 52 (Marcel Dekker).

J. N. Crossley: The Emergence of Number, pp 376, U.S. $14·50 (p/b $2·50) (Upside Down A Book Co.).

D. Sundararaman: Moduli, Deformations & Classification of Compact Complex Manifolds, pp 261, £9·95 (Pitman).

P. J. Holt: Mechanics: Essential Theory and Exercises, pp 203, £2·95 (Hodder & Stoughton).

E. B. Davies: One-parameter semigroups, pp 230, £19·50 (Academic Press).

Y. Namikawa: Toroidal compactification of Siegel spaces, pp 165, DM 21·50; U.S. $12·70 (Springer).

A Campillo: Algebroid curves in positive characteristic, pp 17, DM 21·50; U.S. $12·70 (Springer).

F. Hirsch & G. Mokobodzki (Eds.): Seminaire de théorie du potentiel Paris, 5, pp 242, DM 25; U.S. $14·80 (Springer).

P. Slodowy: Simple Singularities and Simple Algebraic Groups, pp 178, DM 21·50; U.S. $12·70 (Springer).

L. Stoica: Local operators and Markov processes, pp 107, DM 18; U.S. $10·70 (Springer).

L. Gerritzen & M. van der Put: Schottky groups and Mumford curves, pp 317, DM 34·50; U.S. $20·40 (Springer).

T. Tjur: Probability based on Radon measures, pp 232, £18·50 (John Wiley).

T. V. Narayana, R. M. Mathsen & J. G. Williams: Combinatorics, representation theory and statistical methods in groups, pp 192, S.Fr. 52 (Marcel Dekker).

S. Montgomery: Fixed Rings of Finite Automorphism Groups of Associative Rings, pp 126, DM 18; U.S. $10·60 (Springer).

Z. Nitecki & C. Robinson (Eds.): Global Theory of Dynamical Systems, pp 499, DM 53·50; U.S. $31·50 (Springer).

W. Abikoff: The Real Analytic Theory of Teichmüller Space, pp 144, DM 21·50; U.S. $12·70 (Springer).

J. P. Raoult (Ed.): Statistique non Parametrique Asymtotique, pp 175, DM 21·50; U.S. $12·70 (Springer).

P. Lelong & H. Skoda: Séminaire Pierre Lelong–Henri Skoda (Analyse) Années 1978/79, pp 356, DM 39; U.S. $23·00 (Springer).

J. Král: Integral Operators in Potential Theory, pp 171, DM 21·50; U.S. $12·70 (Springer).

J. A. Green: Polynomial Representations of GL_n, pp 126, DM 18; U.S. $10·60 (Springer).
L. Rade & B. A. Kaufman: Adventures with your pocket calculator, pp 139, 95p (Penguin).
R. L. Graham, B. L. Rothschild & J. H. Spencer: Ramsey Theory, pp 174, £11·75 (John Wiley).
H. I. Freedman: Deterministic Mathematical Models in Population Ecology, pp 254, S.Fr. 64 (Marcel Dekker).
T. A. Burton (Ed.): Modeling and Differential Equations in Biology, pp 296, S.Fr. 75 (Marcel Dekker).
J. & M. Grossman & R. Katz: The First Systems of Weighted Differential and Integral Calculus, pp 55, U.S. $3 (Archimedes Fdn.).
J. Ponstein: Approaches to the Theory of Optimization, pp 205, £16 (Cambridge U.P.).
J.-P. Lecontre & P. Pilibossian: Algèbre Exercises conrigés avec rappels de cours, pp 216 (Masson).
J.-P. Lecontre & P. Pilibossian: Analyse Exercices conrigés avec rappels de cours, pp 208 (Masson).
G. S. Boolos & R. C. Jeffrey: Computability and Logic, pp 285 (2nd ed.), £17·50 (£5·95 p/b) (Cambridge U.P.).
M. C. Crabb: Z/2-Homotopy Theory, pp 128, £6·95 (Cambridge U.P.).
N. Koblitz: p-adic Analysis: A short course on recent work, pp 163, £6·75 (Cambridge U.P.).
A. M. Arthurs: Complementary variational principles (2nd ed.), pp 154, £16 (Clarendon Press).
N. I. Akhiezer & I. M. Glazman: Theory of Linear Operators in Hilbert Space, Vol. 1, pp 312, £38·50 (Pitman).
N. I. Akhiezer & I. M. Glazman: Theory of Linear Operators in Hilbert Space, Vol. 2, pp 552, £29·50 (Pitman).
M. Atteia, D. Bancel & I. Gumowski: Nonlinear problems of analysis in Geometry and mechanics, pp 208, £8·50 (Pitman).
G. L. Lamb, Jr.: Elements of Soliton Theory, pp 289, £16 (Wiley).
L. B. Kovacs: Combinatorial Methods of Discrete Programming, pp 281, $25·00. Akadémiai Kiadó (Hung. Acad. Sciences).
D. Frank Hsu: Cyclic Neofields and Combinatorial Designs, pp 230, DM 25; U.S. $14·20 (Springer).
F. van Oystaeyen (Ed.): Ring Theory, Antwerp 1980, pp 209, DM 25; U.S. $14·70 (Springer).
P. G. Ciarlet & P. Rabier: Les Equations de von Kármán, pp 181, DM 21·50; U.S. $12·70 (Springer).
W. N. Everitt: Ordinary and Partial Differential Equations, pp 271, DM 29; U.S. $17·20 (Springer).
A. Weron (Ed.): Probability Theory and Vector Spaces II, pp 324, DM 34·50; U.S. $20·40 (Springer).
R. W. Robinson, G. W. Southern & W. D. Wallis (Eds.): Combinatorial Mathematics VII, pp 256, DM 29; U.S. $17·20 (Springer).
E. Lloyd: Probability, pp 450, £32·50; U.S. $85·00 (Wiley).
K. Mahler: P-adic Numbers and their functions, pp 320, £19 (Cambridge U.P.).
J. Lee Kavanu: Symmetry: an Analytical Treatment. Science Software Systems, Inc.
W. Ledermann & S. Vajda (Eds.): Handbook of applicable mathematics, Vol. I: Algebra, pp 524, £32·50 (Wiley).
D. R. Henney (Ed.): Open questions in mathematics—a collection of unsolved problems, pp 200 (est.), U.S. $12 (Department of Maths., Geo. Washington University).
D. L. Colton: Analytic theory of partial differential equations, pp 239, £24 (Pitman).
A. Aranjo & E. Giné: The central limit theorem for real and Banach valued random variables, pp 233, £14·70 (Wiley).
I. V. Basawa & B. L. S. Prahasa Rao: Statistical inference for stochastic processes, pp 438, £26·80 (Academic Press, London).
T. R. Willemain: Statistical methods for planners, pp 304, £10·85 (MIT Press).
C. Kosniowski: A first course in algebraic topology, pp 269, £18 (£6·96 p/b) (Cambridge University Press).
C. Chatfield: The analysis of time series: an introduction, pp 268, £6·50 (Chapman & Hall).
V. Bryant & H. Perfect: Independence theory in combinatorics, pp 144 £5·50 p/b (Chapman & Hall).
J. E. Hayes, D. Michie & L. I. Mikolich (Eds.): Machine intelligence, pp 492, £27 (Wiley).

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LONDON MATHEMATICAL SOCIETY

TWO-DAY MEETING AT LEEDS
15-16 May 1981

Friday 15 May

2.15 p.m.	Opening Session
2.30 p.m.	Professor A. J. Macintyre (Yale) "The Laws of Exponentiation"
3.45 p.m.	Tea
4.30 p.m.	Professor L. W. Small (San Diego) "Numerical Invariants for Rings"
6.30 p.m.	Dinner

Saturday 16 May

9.45 a.m.	Professor C. M. Ringel (Bielefeld) "Representation Theory of Finite-Dimensional Algebras"
11.00 a.m.	Coffee
11.30 a.m.	Professor D. S. Scott (Oxford) "An Attempt to make Partial Algebras Mathematically Interesting"
1.00 p.m.	Lunch

British Logic Colloquium Meeting 16 May 1981

2.15 p.m.	Professor P. C. Eklof (Irvine) "Almost Free and Almost Disjoint Groups"
3.30 p.m.	Tea
4.00 p.m.	Professor P. Freyd (Pennsylvania) "Geometric Logic"

Lectures will take place at the
Albert Mansbridge College
Clarendon Road, Leeds

For further information apply to Dr. S. S. Wainer, School of Mathematics, University of Leeds