# The London Mathematical Society Newsletter

### No. 174

### **July 1990**

### FORTHCOMING SOCIETY MEETINGS

Friday 19 October 1990, Burlington House Integrable Nonlinear Systems J.C. Eilbeck, A.P. Fordy, R.S. Ward, J.D. Gibbon

Friday 16 November 1990, Burlington House Annual General Meeting J.H. Coates, R.L. Taylor

### LMS 1990 PRIZES

The Polya Prize is awarded to G.B. Segal for his work on the interactions between mathematics and physics.

The Senior Berwick Prize is awarded to N.J. Hitchin for his paper 'The self-duality equations on a Riemann surface', Proc. London Mathematical Society (3) 55 (1987) 59-126.

Junior Whitehead Prizes are awarded to M.T.

Barlow for his work on probability theory and stochastic analysis, to R.L. Taylor for his work on *I*-adic representations for Hilbert modular forms, and to A.J. Wassermann for his work on operator algebras and related topics.

R.Y. Sharp Council and General Secretary

### INTERNATIONAL CONGRESS OF MATHEMATICIANS

The London Mathematical Society will be holding a Meeting and Reception with a Buffet during ICM-90 at 7.30pm on Friday 24th August 1990 in the Faculty Club of Kyoto University. Members who wish to attend are asked to write to the Administrator, London Mathematical Society, Burlington House, Piccadilly, London W1V 0NL, no later than 17th July. The Society hopes to entertain as many as possible of its members who are attending the International Congress in Kyoto but numbers are limited by the capacity of the Faculty Club.

### VISIT OF PROFESSOR EGON BÖRGER

Professor Egon Börger (University of Pisa) will be visiting England for the first two weeks of July. He will be giving talks on PROLOG and other aspects of logic related to computer science at Swansea (contact: J. Tucker), Bristol (contact: J. Lloyd), Imperial College, London (contact: S. Abramsky) and Queen Mary & Westfield College, London (contact: D. Cohen).

The London Mathematical Society has provided financial support for this visit.

#### **ROYAL SOCIETY NEWS**

The five-year term of Presidency of Sir George Porter, O.M., will come to an end on 30th November 1990. Council has agreed, as on the last occasion, to announce publicly its choice of candidate for the Presidency well in advance of the election on 30th November. The candidate to be so recommended to the Society for election to the Council and to the office of President on 30th November 1990 is Sir Michael Atiyah, F.R.S., who is currently Royal Society Research Professor at the University of Oxford.

#### **PROGRAMME AND CONFERENCE FUND**

The Society's Programme and Conference Fund is used to give financial support to various mathematical activities in the UK. This fund is administered by the Society's Programme Committee. Grants are made under three main headings.

#### 1. Scheme 1 Visitors

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Under this scheme, a speaker from abroad is invited to spend about two weeks in the UK, to address a Society Meeting and to give lectures in three or four separate institutions. The Society pays the cost of the visitor's travel to and from the UK and living expenses in London, and the host institutions are expected to share the cost of travel within the UK and local accommodation. LMS Council is anxious that greater use should be made of this scheme to enhance, by such visits, the benefit of LMS membership to those who are not easily able to attend London meetings. In planning the Society's future meetings, Programme Committee will have this scheme in mind, and suggestions from UK institutions for visitors they would like to receive but whose expenses they could not normally afford are strongly encouraged. Programme Committee tries to plan Society Meetings at least six months in advance. Thus a suggestion for a visitor under this scheme should best be made about one year before the proposed visit.

#### 2. Scheme 2 Visitors

Under this scheme, some financial support is provided for visitors to the UK who do not address a Society Meeting but will give lectures in at least three separate institutions. Exceptionally, support under this scheme might be provided for a speaker addressing just one meeting which is regional in scope. The LMS contribution under this scheme would be for the visitor's travelling expenses to and from the UK. Host institutions are expected to share the cost of travel within the UK and local accommodation. All arrangements for a visit supported under this scheme are the responsibility of the member who makes the application. An application, in the form of a letter to the Meetings and Membership Secretary (address below), can be submitted at any time, but should normally be made at least three months before the starting date of the proposed visit, so that the lectures to be given can be publicized in the Society's Newsletter. Grants under this scheme do not normally exceed £250. In the past six months, grants have been made under Scheme 2 to support the following visits: Dr M. Laczkovich (D.G. Larman), Professor D.W. Strook (E.B. Davies), Dr J. Brudern (R.J. Cook), Professor C. McMullen (S.M. Rees), Professor T. Levassuer (T.H. Lenagan), Dr V. Shulman (E. Kissin), Professor R. Guralnick (C.J. Bushnell), Professor E. Börger (D.E. Cohen).

#### 3. Financial Support for Conferences

Grants are made from the Conference Fund to the organizers of conferences to be held in the United Kingdom. Programme Committee tends to give priority to the support of small meetings where an LMS grant can be expected to make a significant contribution to the viability and success of the meeting. Support of larger meetings of high quality is not ruled out but for such meetings an LMS grant would normally cover only part of the total cost. An Application Form, obtainable from the Meetings and Membership Secretary (address below), sets out conditions under which grants are normally made and requests the information Programme Committee usually requires when considering an application.

The following grants for support of conferences have been made within the past six months: £584 to T.H. Lenagan for the 'Scottish Algebra Day' held at Heriot-Watt University in March 1990; £600 to G.R. Grimmett for 'Disorder in Physical Systems' held at Oxford in March 1990; £660 to C.J. Budd for 'Nonlinearity' held at Bristol in April 1990; £200 to A.J.W. Hilton for the 'One-Day Combinatorics Colloquium' held at Reading in April 1990; £1300 to A. West for 'Surfaces, Submanifolds and their Applications' held at Leeds in May 1990; £83 to M.M. Dodson for the 'Yorkshire Pure Mathematics Colloquium' held at York in June 1990; £1000 to J.W.P. Hirschfeld for 'Finite Geometries and Designs' to be held at the Isle of Thorns in July 1990; £2600 to N. Ray for the 'Adams Memorial Symposium on Algebraic Topology' to be held at Manchester in July 1990; £500 to R.S. MacKay for 'Water Waves' to be held at Warwick in July 1990: £500 to N.J. Young for 'Operators and Systems' to be held at Lancaster in July 1990; £500 to S.S. Wainer for 'Leeds Proof Theory 1990' to be held at Leeds in August 1990; £1000 to D. Salamon for the 'Conference and Workshop on Symplectic Geometry' to be held at Warwick in August 1990; £180 to D.A. Brannan for the 'One-Day Function Theory Meeting' to be held at the Open University in September 1990; £1000 to R. Penrose for the 'Fourteenth TEXAS Symposium on Relativistic Astrophysics' to be held at the Brighton Conference Centre in December 1990.

Further information about these functions of Programme Committee can be obtained from the Meetings and Membership Secretary, A.R. Pears, Department of Mathematics, King's College London, Strand, London WC2R 2LS, telephone 071-873-2852, who will be pleased to discuss proposals informally with potential applicants and to give advice on submission of an application to the Society. The next meeting of Programme Committee will be held in September and it would be a great help if suggestions and applications to be considered at that meeting could be submitted no later than 31st August 1990.

### 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, Department of Pure Mathematics, University of Sheffield, Hicks Building, Sheffield S3 7RH). Such nominations must arrive before noon on 01 September 1990, 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 1990 Council Elections will, like those of 1989 and 1988, be essentially a formality.

At the time this notice was prepared, Council's decisions about its nominations were not quite complete, but those which had been made are indicated in the following list.

### COUNCIL'S NOMINATIONS FOR THE 1990 ELECTIONS

OFFICERS (one-year terms) President J.F.C. Kingman

Vice-Presidents J.M. Howie P.M. Neumann

Council and General Secretary R.Y. Sharp

Publications Secretary D.A. Brannan

MEMBERS-AT-LARGE (two-year terms) D.G. Crighton H.R. Morton Treasurer J.D.M. Wright

Meetings and Membership Secretary A.R. Pears

Librarian

J.A. Erdos

E.C. Lance To be arranged

MEMBERS-AT-LARGE (one-year terms) W.A. Hodges

C.M. Series

R.L.E. Schwarzenberger

Notes. (i) Council has agreed that it will co-opt to membership the Chairmen of Computer Science and Education Committees (currently W.A. Hodges and R.L.E Schwarzenberger respectively) if they are not otherwise members of Council.

(ii) In accordance with the By-Laws, Council will nominate for the new Council at least two members of the Society who are not on the retiring Council.

(iii) Members should note that the following **FIVE** members-at-large of Council elected for two-year terms in November 1989 will have one remaining year to serve: S.K. Donaldson, W.D. Evans, C.J. Mulvey, P. Vámos, N.J. Young.

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 1990 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

# Cambridge



### P. KLEIDMAN and M. LIEBECK

This book develops a unified treatment of the theory of the 'geometric subgroups' of the classical groups, introduced by Aschbacher. It answers the questions of maximality and conjugacy, and obtains the precise shapes of these groups. £17.50 net Paperback 0 521 35949 X 313 pp. 1990

Special price for LMS Members: £13.10

London Mathematical Society Lecture Note Series 129

# **Introduction to Uniform Spaces**

### I. M. JAMES

This introductory book is a bridge between the study of metric spaces and general topological spaces. Much of the book is devoted to relatively little-known results. which are published here for the first time.

£13.95 net Paperback 0 521 38620 9 150 pp. 1990 Special price for LMS Members: £10.46

London Mathematical Society Lecture Note Series 144

### **Continuous and Discrete Modules**

### S. H. MOHAMED and BRUNO J. MÜLLER

A complete and up-to-date account of the subject that gives a unified picture of the theory. The treatment is self-contained, with background facts being summarised in the first chapter.

£12.50 net Paperback 0 521 39975 0 136 pp. 1990 Special price for LMS Members: £9.38 London Mathematical Society Lecture Note Series 147

### Number Theory and Cryptography

### Edited by J. H. LOXTON

Papers in this volume range from problems in pure mathematics, through interesting theoretical and combinatorial problems which arise in the implementation, to practical questions that come from banking and telecommunications.

£17.50 net Paperback 0 521 39877 0 247 pp. 1990

Special price for LMS Members: £13.10

London Mathematical Society Lecture Note Series 154

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The Edinburgh Building, Cambridge CB2 2RU, UK.

# Cambridge

# **Basic Hypergeometric Series**

### G. GASPER and M. RAHMAN

This book meets the need for an up-to-date, self-contained and authoritative account of basic hypergeometric series and its diverse applications. It can be used for upper-divisional courses and will be the standard reference for years to come. £35.00 net Hardback 0 521 35049 2 307 pp. 1990 Encyclopedia of Mathematics and its Applications 35

## **Representations and Characters of Finite Groups**

### M. J. COLLINS

This account will be of value as a textbook for graduate students. It provides an introduction to the application of ordinary character theory to the classification of finite simple groups, also giving an account of the most recent work on isometries. £30.00 net Hardback 0 521 23440 9 256 pp. 1990 Cambridge Studies in Advanced Mathematics 22

# **Informal Logic**

# A Handbook for Critical Argumentation **DOUGLAS N. WALTON**

This is an introductory guidebook to the basic principles of how to construct good arguments and how to criticise bad ones. It is non-technical in its approach, with 150 key examples, each discussed and evaluated in clear, illustrative detail. £27.50 net Hardback 0.521 37032 9 302 pp. 1989

£9.95 net Paperback 0 521 37925 3

### **Computability and Logic**

### Third Edition

### **GEORGE S. BOOLOS and RICHARD C. JEFFERY**

... particularly appropriate for graduate and advanced undergraduate students in philosophy... The book is written in a clear and pleasing style and avoids pedantry...
It should be an excellent text for its intended audience.' Mathematical Reviews £35.00 net Hardback 0 521 38026 X 316 pp. 1990

£12.95 net Paperback 0 521 38923 2

For further information write to Susan Chadwick at the address below



The Edinburgh Building, Cambridge CB2 2RU, UK.

### THE CHANGING FACE OF A-LEVEL MATHEMATICS

A variety of pressures exist to change what goes on in A-level mathematics. These include the drive to rationalise vocational and academic qualifications, the changes in the 11-16 curriculum and in available technology, and the increasing demand for students with mathematical understanding.

There are two major phases to these changes in the short term. SEAC, the School Examinations and Assessment Council, is currently considering those proposals from boards and projects intended to begin in 1991, for first examination in 1993. The students who will take these courses are those who all took GCSE with some coursework. In the second phase, SEAC will consider proposals which will be intended for those students who are assessed under the GCSE adapted to the National Curriculum, that is, to begin in 1994, for first examination in 1996. At least, that is the plan.

One of the changes expected is an increase in the number of A-level courses involving coursework assessment. At present only three A-level courses we know of involve coursework assessment; one 100% coursework A-level being run by the West Sussex Institute of Higher Education as a pilot scheme, and two syllabuses which require a statistics project. To build on the principles of GCSE, A-level assessment will be looking to "use assessment techniques appropriate to the mathematical content." The major current projects, for example MEI and SMP, will include elements of coursework assessment, hopefully from 1991, and it is likely that the new Nuffield Project will also,

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with intended starting date 1994.

Another change will be one of structure; many of the A-levels are becoming modular. This is partly a device to deal with the need to provide AS courses as well as A-level courses, partly to meet the broad range of interests of the students who now take advanced mathematics.

Thirdly, there are changes in content and method. There is increased use of calculators and computers. Interest is growing rapidly in modelling, in decision mathematics, in numerical methods and algorithms. Data handling has a higher profile in the national curriculum than we have been used to in 11-16 mathematics, and this too is affecting A-level content, as is the interest in exploratory data handling techniques. Also, there is a growing interest in the history of mathematics at this level.

There will be other changes, as yet unclear, to take account of the need to rationalise the syllabuses, and to meet the Secretary of State's intention to make vocational and academic qualifications converge. The SEAC will be performing a consultation exercise on A-level in September to which the Education Committee will be responding on your behalf.

We have included a more detailed account of one of the current projects, SMP.

If readers would welcome this, other projects have offered to write similar accounts.

S. Burns R.L.E. Schwarzenberger

### **MATHEMATICS 16-19**

The School Mathematics Project has been engaged on its major new development "Mathematics 16-19" since 1986. The effort is directed at revising post-16 mathematics in the light of changes that have taken place in schools following the introduction of the GCSE. A trial of the scheme is currently operating in 32 schools throughout the country. The aims of the course are:

- (a)to encourage more students to study Mathematics beyond the age of 16,
- (b)to provide a course for these students which better reflects their interests, enthusiasms and abilities.
- (c)to use approaches and material which take account of computer and calculator technology,
- (d)to bring about a change in teaching and learning methods in the classroom which will develop in students the enthusiasm to explore mathematical ideas and the confidence to use what mathematical skills they possess.

The course is constructed on a Core plus Options scheme, and makes provision for A/S as well as A-level and Further Mathematics. The Core covers the elements of the SCUE common core material as well as introducing some of the applications of mathematics in both Statistics and Mechanics. The options give students the opportunity to pursue areas of interest to them or which support or give greater insight into their other A-level studies. Optional units are being developed in, for example, The History of Mathematics, Mathematical Modelling in Geography, and Mathematics for Business and Finance. Assessment of the scheme will consist of various forms of school based assessments as well as a final written examination.

The development is based on an extensive trialling of material and ideas in schools. It is written by practising teachers both in schools and universities, and incorporates other major initiatives such as the 'Mechanics in Action' project based at the Universities of Manchester, Leeds and Sheffield.

C.G.H. Belsom

#### HOWIE COMMITTEE

The 'Highers', a characteristic feature of the Scottish school system since 1888, and the main gateway to higher education, typically involve a package of five subjects examined at the age of 17. The system does have a number of advantages over the A-level system. Most obvious is the avoidance of premature specialisation, but a further point in its favour is the better retention rate: in 1986 21% of Scots technically gualified for higher education by gaining three or more highers, while only 14% of their English counterparts had gained two or more A-levels. The system appears to be especially favourable to girls, who in fact gain slightly more passes overall than boys. In Mathematics, the numbers of boys and girls gaining passes are virtually equal.

The disadvantage of the system became apparent when the school leaving age was raised to 16. Partly in preparation for that event a 16+ 'Ordinary Grade' examination, broadly similar in scope and purpose to the GCE O-level, was introduced in 1961. This has recently been replaced by a 'Standard Grade' system, aimed at the entire ability range, and not too different in spirit from the GCSE. As far as mathematics is concerned, it involves 3 syllabuses and 7 possible grades.

Discontent with the system arises from the fact

that in the short period between the ages of 16 and 17 pupils are expected to learn an enormous amount. Pupils and teachers find it a scramble; university teachers find that syllabus cover has been sketchy and that the system amply demonstrates the proposition that knowledge learned the night before an examination is forgotten the night after.

Some pupils opt to stay on for a further year and to take the Certificate of Sixth Year Studies (CSYS). For those who make good use of it, the extra year is an excellent preparation for higher education, and passes in CSYS are a means of entry to English universities. The trouble is that the passes do not *matter* enough to the majority of the pupils, many of whom are already qualified to enter higher education in Scotland, and all too often the year is spent in rather aimless idleness.

The Secretary of State for Scotland has now set up a committee to review the system and to recommend necessary changes. The chairman is Professor John Howie of the University of St Andrews, a member of the London Mathematical Society since 1962 and currently both on the Education Committee and on the Council. The report should be published by the end of 1991.

### IMU-UNESCO Visiting Mathematicians Programme

Besides its own programme, thanks to special UNESCO support, the International Mathematical Union Commission for Development and Exchange will provide for the biannum 1990-1991 a limited number of grants aiming in particular to partially cover travel expenses of mathematicians wishing to visit academic institutions abroad.

They may either come from developing countries to spend a research period in well qualified mathematical centers, or come from developed countries, to spend reasonably long teaching/ research periods in universities or research centers in developing countries.

Applications containing a curriculum vitae and detailed information on the applicant's scientific achievements and interests as well as a description of the program related to the request should be sent to the Secretariat of CDE, c/o Professor Jean Pierre Bourguignon, Centre de Mathématiques, Ecole Polytechnique, F-91128 Palaiseau Cedex, France.

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### L. Hörmander, University of Lund

# *The Analysis of Linear Partial Differential Operators I*

### **Distribution Theory and Fourier Analysis**

2nd ed. 1990. Approx. 390 pp. 5 figs. (Springer Study Edition) Softcover £24.50 ISBN 3-540-52343-X

Due to popular demand this classic presentation of a vast amount of information on linear partial differential equations by a consummate master of the subject is now available as a study edition.

The main change in this new edition is the inclusion of exercises with answers and hints. Thus it can serve as a text for a general course in modern analysis both at graduate student level and at the start of a specialised course in partial differential equations. In particular, it could also serve as an introduction to harmonic analysis.

This edition is still available in parallel as volume 256 of the Grundlehren der mathematischen Wissenschaften.

**From the reviews:** "...it is the best now available in print. ...All the theorems are there (among them the Schwartz kernel theorem), and they all have... proofs."

Bulletin of the American Mathematical Society

Springe

"It certainly will be a classic for many years."

Zentralblatt für Mathematik

### Also available:

L. Hörmander, The Analysis of Linear Partial Differential Operators

- II: Differential Operators with Constant Coefficients. (Grundlehren der mathematischen Wissenschaften, 257) 2nd print.
  1990. £53.00. ISBN 3-540-12139-0
- III: Pseudo-Differential Operators. (Grundlehren der mathematischen Wissenschaften, 274) 1985. £56.50. ISBN 3-540-13828-5
- IV: Fourier Integral Operators. (Grundlehren der mathematischen Wissenschaften, 275) 1985. £56.50. ISBN 3-540-13829-3

Springer-Verlag Berlin Heidelberg New York London Paris Tokyo Hong Kong Springer House, 8 Alexandra Rd., London SW19 7JZ, England

### ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES

#### A National Research Institute in Cambridge

Plans are now well advanced for the Isaac Newton Institute for Mathematical Sciences, a research institute whose activities will encompass pure mathematics, applied mathematics, statistics, engineering, computer science, theoretical physics and all other sciences in which mathematics is applied. Sir Michael Atiyah has agreed to be the first Director of the Institute.

The main scientific activities of the Institute will be visitor programmes. Typically, there will be two six-months programmes in progress, with about twenty scientists associated with each in residence at any one time (more during university vacations). Additionally, there will be instructional courses and workshops, with the larger numbers attending accommodated close to the Institute.

The Institute will be housed in a purposedesigned building, a mile to the north-west of the Cambridge mathematics departments and half a mile to the east of the new Cavendish Laboratory. It is expected to be completed by July 1992 when the scientific work of the Institute is planned to begin. The building will contain seminar rooms, a library and about thirty offices, and is being designed to promote interaction between the participants.

The Society's Invited Lectures Series consists of meetings at which a single speaker gives a course of about ten expository lectures, examining some subject in depth, over a five day period (Monday to Friday) during a University vacation. The meetings are residential and open to all interested. It is intended that the texts of the lectures given in the series shall be published. In addition to full expenses the lecturer is offered a fee of £1000 for giving the course and a further fee of £1500 on delivery of the text in a form suitable for publication. The series was inaugurated at Cambridge in March 1990 with lectures by Professor R. Melrose. It is expected that the second meeting will be held at

An international conference on Approximation Theory will be held from 5th to 11th August 1990 in Kecskemet, Hungary. The conference is being organised by the Janos Bolyai Mathematical Society. Conference topics include Fourier The establishment of the Institute has been made possible through the generous support of St John's and Trinity Colleges, Cambridge, the Science and Engineering Research Council, the University of Cambridge, the London Mathematical Society, NM Rothschild and Sons, Cambridge University Press and the Applied Probability Trust.

#### **Call for Proposals**

Preparations for the first year's scientific programme are beginning. Preliminary proposals for six-month visitor programmes will be welcomed at any time. Proposals for 1992-93 should, if possible, be submitted by 1st August 1990, addressed to Dr P.V. Landshoff, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, Silver Street, Cambridge, CB3 9EW.

Those wishing to submit proposals should read the leaflet giving more information about the Institute and the sheet containing details relating to the submission of proposals, which can be obtained from the above address and which are being sent to departments in U.K. universities. Dr Landshoff (tel: 0223 337880; e-mail pv1@uk.ac.rl.ib) will be glad to answer any enquiries. The Institute's Scientific Steering Committee will meet in October to consider proposals.

#### **INVITED LECTURES SERIES**

Southampton in 1991 when the lecturer will be Professor J.E. Marsden.

For the 1992 meeting, proposals are now invited from any member who, in addition to suggesting a topic and lecturer, would be prepared to organize the meeting at the members's own institution or a suitable conference centre. Enquiries about this series should be sent to the Meetings and Membership Secretary, A.R. Pears, Department of Mathematics, King's College London, Strand, London WC2R 2LS (telephone 071-873-2852) to whom proposals should be sent no later than 31st August 1990.

### **APPROXIMATION THEORY**

analysis; approximation procedures; interpolation theory; and function spaces.

For further information write to the Janos Bolyai Mathematical Society, Budapest, Anker Koz 1, H-1060 Hungary.

#### LMS PUBLISHING ACTIVITIES

The Society regularly requires various types of work done in connection with its publishing programme; it has a number of book series and journals, some of these in conjunction with other organisations. In addition the Society often receives enquiries from other bodies who require assistance with similar work.

if you are interested in either translation of

mathematical papers from Russian or in acting as an Executive Editor for mathematical material, please contact the Publications Secretary, Professor D.A. Brannan, Department of Pure Mathematics, The Open University, Milton Keynes MK7 6AA.

The work is interesting and rewarding, and paid at reasonable rates.

### CONFERENCE ON SYMPLECTIC GEOMETRY

From 13th to 17th August the University of Warwick will hold a Conference on Symplectic Geometry. Topics will include the global geometry of symplectic manifolds, and qualitative theory of Hamiltonian differential equations, elliptic methods and Floer homology.

Invited participants include: S. Angenent (Madison), \*D. Bennequin (Strassbourg), E. Ciriza (Trieste), S. Donaldson (Oxford), Y. Eliashberg (Stanford), \*A. Floer (Berkeley), \*M. Gromov (IHES), \*M. Herman (Paris), H. Hofer (Bochum), S. Husseini (Madison), \*M. Kazarian (Moscow), F. Kirwan (Oxford), \*V.V. Kozlov (Moscow), D. McDuff (Stony Brook), J. Mather (Princeton), B. Pansu (Paris), P. Rabinowitz (Madison), J. Robbin (Madison), R. Sjamaar (Utrecht), C. Viterbo (Paris), J.G. Wolfson (New Orleans) and E. Zehnder (Zurich) (\* To be confirmed).

The Conference is supported by SERC. There will be some support for British participants provided by the London Mathematical Society. For further information please contact Dietmar Salamon, Mathematics Institute, University of Warwick, Coventry CV4 7AL. E-mail address: das@uk.ac.warwick.maths.

### NUMERICAL METHODS IN FLUID MECHANICS

rodynamics, propulsion and rotating machines.

The ninth GAMM Conference on Numerical Methods in Fluid Mechanics will be held from 25th to 27th September 1991 at the Swiss Federal Institute of Technology. In general the theme of the conference is the development and application of Numerical methods in fluid mechanics. In particular, emphasis is given to innovation in methods for parabolic and hyperbolic problems and the Numerical solution of problems in aero- and hyd-

Participants wishing to present a paper at the conference are asked to submit an abstract (two pages) by 1st March 1991 to the Chairman, Professor I.L. Rhyming, IMHEF/DME, EPFL, CH-1015 Lausanne, Switzerland. Tel: 41 21 693 35 03; fax: 41 21 693 36 46.

### MARGARET E. GRIMSHAW

Miss Margaret E. Grimshaw who was elected a member of the London Mathematical Society on 12th December 1929, died on 21st January 1990 at the age of 85.

# UNIVERSITY COLLEGE LONDON DEPARTMENT OF MATHEMATICS

Application are invited for a Lectureship in the Department of Mathematics from January 1991. Candidates in all branches of pure mathematics will be considered, although preference will be given to those with interests in geometric measure theory or some area of classical or modern analysis. Salary will be on Lecturer A scale £11,399-£16,755 with £1,767 London Allowance.

Apply with C.V. and the names of 2 referees to: Professor D. Preiss, Department of Mathematics, University College London, Gower Street, London WC1E 6BT, England.

UCL is an equal opportunity employer.



Herbert William Richmond (1863-1948) FRS was born in Tottenham and educated at King's College Cambridge, where he was third Wrangler. Cramming dulled his appetite for mathematics, and he turned to music for a while, before becoming a Fellow of King's, which he remained for the next 60 years. He chiefly wrote on elementary algebraic geometry and algebraic number theory. Intensive gunnery trials conducted at Portsmouth from 1916 to 1919 left him rather deaf; he published his two-volume *Text book of AA (anti-aircraft) Gunnery* in 1924-25. Elected an FRS in 1911, he was the Society's 29th President, from 1920-1922.

DIARY

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The diary further inform	lists Society meetings and other events publicised in previous issues of the Newsletter.For ation, refer to the figure in brackets, which is a cross reference to the LMS Newsletter Number
1990	
1-8	Dynamics and Complexity, Sweden (171)
1-15	Adams Memorial Symposium, Manchester (163) (172)
2-6	Australian Mathematical Society Annual Meeting, Australia (165)
3-6	Ordinary and Partial Differential Equations, Dundee (164)
5-15	Groups and Combinatorics, LMS Durham Symposia (167)
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)
12-13	Operators and Systems Lancaster (172)
15-21	Finite Geometries and Designs, Sussex (170)
18-20	Water Waves, Warwick (170)
22-1 Aug	Boolean Function Complexity, LMS Durham Symposia (167)
23-30	Teacher of Mathematics in the Changing World, Poland (173)
24-2 Aug	Proof Theory, Leeds (170)
25-5 Aug	Programming and Mathematical Method, West Germany (170)
30-25 Aug	Symplectic Geometry, Warwick (170)
31-2 Aug	Dynamics of Numerics and Numerics of Dynamics Bristol (167)
AUGUST	- Juanice of Hamorice and Hamorice of Dynamics, Dilstor (107)
8-11	Algebra and Topology, Korea (173)
20-25	Numerical Methods, Hungary (169)
21-29	International Congress of Mathematicians 1990, Japan (151) (165) (166) (168)
21-29	Logic Conference, Japan (160)
SEPTEMBER	
3-7	Algebra and Number Theory, Turkey (172)
3-8	Physical Interpretations of Relativity Theory, London (168)
16-22	Deutsche Mathematiker Vereinigung 100th Anniversary, West Germany (170)
17-21	Algebraic Methods in Computing Science, Swansea (171)
24	Function Theory, Open University (172)
24-25	British Topology, Liverpool (172)
25-29	Structures in Mathematical Theories, Spain (166)
OCTOBER	,
19	LMS Meeting, London
21-27	Functional Analysis, Spain (172)
NOVEMBER	
16	LMS Meeting, London
19-22	Huygens' Principle, Theory and Applications, The Netherlands (170)
25-28	Mathematics and its Applications, Bahrain (172)
1991	
JANUARY	
18	LMS Meeting, London
FEBRUARY	
15	LMS Meeting, Lancaster
MARCH	
15	LMS Meeting, London
25-29	British Mathematical Colloquium, Bath
APRIL	at King's College Cambridge, where he was third Wrangles. Craining
20-20	Mauremancar and Numerical Aspects of Wave Propagation Phenomena, France (172)
The Newslette	r is published monthly execut in August Items and a lattice is in the second

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