

# THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 210

November 1993

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## FORTHCOMING SOCIETY MEETINGS

Friday 19 November 1993, Burlington House

Annual General Meeting

D.G. Crighton, M.V. Berry

Friday 21 January 1994 Burlington House

L. Lovasz, C. Thomassen

Friday 18 February 1994, Newcastle

Friday 18 March 1994, Burlington House

Friday, Saturday, 13-14 May 1994, Leeds

Friday 17 June 1994, Burlington House

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## LEEDS LOGIC CONFERENCE

There will be a two-day meeting on mathematical logic at Leeds University, 10-11 December 1993. The meeting is being held in conjunction with the Leeds Recursion Theory Year and also the series of short UK meetings on Model Theory and Groups. The following have agreed to speak: Z. Chatzidakis (Paris VII), S. Kuhlmann (Heidelberg), A. Lachlan (Simon Fraser), A. Macintyre (Oxford), Y. Peterzil (Haifa, visiting Oxford), T. Slaman (Chicago, visiting Leeds), A. Wilkie (Oxford), H. Woodin (Berkeley).

All are welcome. There will be a registration fee of £5. It would be appreciated if those who intend to come would inform

either Barry Cooper or John Truss. It will be possible to accommodate a number of participants at Fairbairn House, near the university. Those wishing to make a booking for accommodation should let the organizers know as soon as possible, indicating which night(s) they wish to stay. Bed and breakfast costs £26.45 at Fairbairn (extra for an en suite room). It may also be possible to supply information about alternative accommodation.

The meeting is receiving financial support from the London Mathematical Society. The organizers are: Barry Cooper, e-mail: [pmt6sbc@uk.ac.leeds.sun](mailto:pmt6sbc@uk.ac.leeds.sun), and John Truss, e-mail: [jkt@uk.ac.leeds.dcs](mailto:jkt@uk.ac.leeds.dcs).

## ANNUAL DINNER

The 1993 Annual Dinner will be held after the Annual General Meeting on Friday 19 November at 6.30 pm for 7.00 pm at the Royal Over-Seas League, Over-Seas House, Park Place, St James's Street, London SW1. The cost is £21.50 per person

and members may book places for guests. The booking form enclosed with the October Newsletter, should be returned together with payment to the London Mathematical Society office by Wednesday 10 November.

## DEPARTMENTAL NEWS

**London School of Economics, Mathematics Sub-Department** Dr G.R. Brightwell has been promoted to a readership from 1 October 1993. Professor S. Alpern has become head of the sub-department, following the appointment of Professor N.L. Biggs as Vice-Chairman of the Appointments Committee.

**Loughborough University of Technology, Department of Mathematical Sciences** has appointed three new members of staff: Professor A.S. Fokas, Dr P.C.

Bressloff and Dr C.M. Linton. Professor Fokas had previously been the Head of the Mathematics and Computer Science Department at Clarkson University in the U.S.A. His research interests are in nonlinear mathematics, biomathematics, inverse scattering in multidimensions and Painlevé equations. Dr Bressloff's interests are in neural networks, nonlinear adaptive systems and statistical physics. Dr Linton's interests are in fluid mechanics, particularly the interaction of water waves with structures.

### VISIT OF PROFESSOR PAUL BUTZER

Professor Paul Butzer (Aachen) will visit the U.K. from 26 October till 18 November and will give the following talks: 27 October Wednesday 2.30 pm at Anglia Polytechnic University, East Road, Cambridge, "The Sampling Theorem of Signal Analysis and its Role in Mathematics"; 3 November Wednesday 4.00 pm in Room 131, Vanbrugh College, University of York, "Mean Ergodic Theorems with Rates for Semigroups and Cosine Operator Functions"; 8 November Monday 2.00 pm in Room 5215, James Clerk Maxwell Building, Edinburgh University,

"Mean Ergodic Theorems with Rates for Semigroups and Cosine Operator Functions"; 12 November Friday 4.15 pm in the Mathematics Department, Nottingham University, "Bernoulli Numbers with Fractional Indices and the Riemann Zeta Function"; 17 November Wednesday 4.30 pm in Room 500, Mathematics Department, University College, London, "Mean Ergodic Theorems with Rates for Semigroups and Cosine Operator Functions". Professor Butzer's visit is supported by a Scheme 2 Visitors grant from the London Mathematical Society.

### VISIT OF PROFESSOR S. KALPAZIDOU

Professor Sophia Kalpazidou of Aristotle University, Thessaloniki, Greece, will be giving three lectures supported by a London Mathematical Society Scheme 2 Visitors grant, during the first week of November. On Wednesday 3 November she will speak on "The Germ Problem for Markov Chains" at 2.30 pm at the Statistics Department, Cambridge University. She will speak on "Rotational

Representations of Markov Chains" on Thursday 4 November at 1.00 pm at the Mathematics Department, London School of Economics, and again at 4.00 pm at the Mathematics Department, University of Sussex. For additional information call the Mathematics Department of the London School of Economics at 071-955 7732. The organizer of the visit is Steve Alpern of the LSE.

### ONE-DAY CONFERENCE ON HOMOTOPY THEORY

The conference, which is supported by a grant from the London Mathematical Society, will be held at the Mathematical Institute in Oxford on Friday 17 December 1993. Speakers include M.J. Hopkins (MIT) and M.E. Mahowald (North Western). College accommodation can be

provided if required. Some financial support may be offered to those who would otherwise be unable to attend.

Further particulars and application forms can be obtained from Professor I.M. James, Mathematical Institute, 24-29 St Giles', Oxford OX1 3LB.

# **LONDON MATHEMATICAL SOCIETY**

**Annual General Meeting  
Friday 19 November 1993 at 3.00 pm**

D.G. Crighton (Cambridge)  
will speak at 3.10 pm on

**The Key Role of Asymptotics  
in Industrial Applied Mathematics**

M.V. Berry (Bristol)  
(1993 Naylor Prize Lecture)  
will speak at 5.00 pm on

**Infinity interpreted :  
Recent Developments in Asymptotics**

Tea will be served at 4.10 pm

The meeting will be held at the Linnean Society,  
Burlington House, Piccadilly, London W1

All interested are very welcome

**Please note early start at 3.00 pm and venue**

## THE BENEFITS OF A UNIFIED COMPUTING AND MATHEMATICS UNDERGRADUATE DEGREE

The London Mathematical Society is holding a day meeting on "The benefits of a unified Computing and Mathematics undergraduate degree" at the Royal Overseas League, Over-Seas House, Park Place, St James's Street, London SW1 on Monday 15 November 1993 from 10.30 am to 4.00 pm. The programme will include talks on the demand for computing/mathematics graduates in industry; topics that might be included in the syllabus; core syllabus;

recruitment; prerequisites. Most of the afternoon session will be devoted to discussion.

For further information and registration forms, contact Ms Shirley Platt, School of Mathematical Sciences, Queen Mary and Westfield College, Mile End Road, London E1 4NS, fax no. 081 981 9587. The meeting is open to all interested people, including both universities and industry. There will be a charge of £15.

## EXECUTIVE EDITOR

The Society invites tenders from suitably qualified persons for the executive editing of mathematical periodicals in 1994. Further information may be obtained from the

Publications Secretary, London Mathematical Society, Burlington House, Piccadilly, London W1V 0NL. The closing date for receipt of tenders is 15 December 1993.

## NATIONAL SCIENCE FESTIVAL

At the September meeting of the British Association, the Minister for Science announced that a national Science Festival will be held in March next year. This has left very little time to organize it, but the BA is determined that it will go ahead and hopes to make it an annual event. At the time of writing, about all that is known is that the Festival will last from 18-27 March, which includes two weekends. It will probably be officially called SET (Science, Engineering, Technology) Week, or something like that. There will be events all over the UK, coordinated from about ten regional centres.

It is obviously important both that the Festival should succeed and that Mathematics should be part of it. I have already written to departments to alert them to what is going on. I have asked them to let

me know what they are planning, because the BA has requested that the learned societies should act as contacts until their own organization has been set up.

This note is intended as a reminder, and also to reach anyone who may feel able to contribute but who has not yet been asked to do anything. If you want to be put in touch with some local centre, rather than trying to run a show on your own, let me know and I will pass the message on to the right place, when there is one. Above all, if you have experience of demonstrations and workshops that you think others might be able to use, please send me details so that I can pass them on. Good ideas are not so easy to come by!

P.T. Saunders  
King's College, London

## MATHEMATICAL SCIENCES ANNUAL 1994

This is the fourth issue of an annual publication containing the address, telephone and fax numbers of Departments of Mathematics, Statistics, Computer Science and kindred subjects at Universities and similar institutions in the United Kingdom. Copies are being distributed free of charge to all the Depart-

ments concerned for further distribution to their members. Subject to availability additional copies can be obtained directly from Professor I.M. James, Mathematical Institute, 24-29 St Giles', Oxford OX1 3LB (please enclose a stamped addressed envelope of the right size).

## KORTEWEG AND DE VRIES

In 1995 it will be exactly one hundred years ago that de Vries defended his thesis under Korteweg about what is known as the 'Korteweg de Vries equation' (KdV equation). This centenary provides a unique occasion to try to survey as many different aspects of the KdV equation and its relatives as possible in a moderate length symposium. The international symposium will be held in Amsterdam, The Netherlands from 23 to 26 April 1995. The themes of the symposium will be soliton equations in fluids and optics, completely integrable systems, analytic, algebraic and geometric methods, super-extensions and theoretical physics.

Scientists and young researchers who are active in one of the themes of the symposium, are invited to participate. The number of participants is limited to about one hundred, which may require a selection that will be based mainly on the participants' proposed contributions. Therefore, people interested to participate are invited to submit a one-page summary of a poster contribution. The posters of all participants can be presented and the summaries will be published in the symposium book. From

these contributions, some twelve contributed papers on hot developments will be selected by the organizing committee for oral presentation and for publication in the proceedings. The aim is to have the proceedings ready at the time of the symposium. To achieve this the following schedule applies: summary of poster to be received by 1 May 1994; invitation to selected authors to submit a contributed paper by 15 June 1995; contributed papers to be received in prescribed TEX-format by 15 September 1994.

The registration fee will be Dfl.600 (including a copy of the proceedings, lunches and beverages and opening ceremony). For a number of participants from Third World countries and Eastern Europe, there are limited possibilities for financial support. All enquiries and request for second announcement can be addressed to Mrs M.I. van der Kooij, Department of Applied Mathematics, University of Twente, PO Box 217, 7500 AE Enschede, The Netherlands, telephone +31 53 893380, fax: +31 53 356695, e-mail: mirande@math.utwente.nl.

## THE FIELDS INSTITUTE FOR RESEARCH IN MATHEMATICAL SCIENCES

The following workshops and conference will be held during 1994 at The Fields Institute for Research in Mathematical Sciences, 185 Columbia Street West, Waterloo, Ontario, Canada, N2L 5Z5, tel: (519)725-0096, fax: (519)725-0704.

14-18 February: Workshop on Galois Module Structure, Organizer: V. Snaith (McMaster University). For further information, please contact Sheri Albers, e-mail: galois@fields.uwaterloo.ca.

28 February - 4 March: Workshop on Algebraic K-theory and Arithmetic, Organizers: M. Kolster (McMaster University), V. Snaith (McMaster

University). For further information, please contact Judy Motts, e-mail: k-theory@fields.uwaterloo.ca.

21-25 March: L-functions Conference, Organizers: M. Kolster (McMaster University), V. Snaith (McMaster University). For further information, please contact Sheri Albers, e-mail: lmain@fields.uwaterloo.ca.

11-15 April: Workshop on L-functions and Automorphic Forms, Organizer: K. Murty (University of Toronto). For further information, please contact Judy Motts, e-mail: automor@fields.uwaterloo.ca.

## THE HULL MATHEMATICS WORKSHOP

by Ekkehard Kopp, Janet Duffin and Adrian Simpson  
School of Mathematics, University of Hull

The School of Mathematics at Hull University began its Mathematics Workshops programme for school pupils from Humberside in 1989. Though motivated by the Royal Institution's 'Mathematics Masterclasses', the workshops quickly developed a distinctive focus, emphasising interest in the subject, rather than proven ability, as the chief criterion for participation in the workshops and dealing exclusively with 12-14 year olds. During 1990-92 the programme received financial support of £500 per annum from the LMS Education Committee and in 1992/3 it attracted a COPUS grant from the Royal Society.

The workshops have grown rapidly, now serving some 300 pupils, mostly in year 8, from over thirty schools, with each pupil normally attending two consecutive Saturday morning sessions. Recently we have added Wednesday afternoon sessions at Hull University and at Franklin 6th Form College, Grimsby - each attended by some 90 pupils. The content and some of the educational outcomes of the workshops have been documented in a more detailed article\*.

The size and format of activities means that pupils' mathematical experience at the Workshops does not necessarily have the same depth that a smaller and more intensive Masterclass provides. The focus is on spreading enthusiasm for the subject as widely as possible, to stimulate and recognise mathematical gifts at an early age and to help dispel the mystery and fear that surrounds much of current school mathematics. Thus the workshops are very much 'hands on': almost all the work in the 2 1/2 hour sessions is done in small groups of 3-4 pupils, helped by volunteers drawn from staff and students of the Schools of Mathematics and Education, as well as enthusiastic teachers and the occasional parent. A workshop of 60-70 pupils would typically have a dozen helpers available to provide support and encouragement. Selection of participants is left to the teachers, but once the pupils

arrive, the groups are mixed thoroughly to encourage co-operation and avoid inter-school competition.

The workshop format is based on a detailed worksheet, which is introduced by the presenter at a short plenary session, and which contains questions and hints. In a 'practical' session on polyhedra, for example, pupils are led to the construction of various regular three-dimensional shapes by sticking together just four basic types of polyhedra. On the way, they are led to exploit symmetry and discover arguments for determining volume. Visual reasoning takes a less significant place in school mathematics than other forms of mathematical thinking and exposure to this form of work often allows pupils to demonstrate surprising insight. Similarly, a worksheet on primes and factors gently leads groups from the notion of factorisation to the realisation that any number with an odd number of factors must be a perfect square. In all this the emphasis is on examples, patterns and convincing rather than on formal proof.

The pupils work together, at their own pace, for two hours, with a pause for refreshments. Groups are then brought together at the end to discuss their findings and draw tentative conclusions. Pupils are encouraged to pursue unresolved questions with their teachers. However, like many such enterprises, set up in this case to foster liaison with local schools and develop an interest in mathematics amongst 12-14 year olds, this one has taken on a life of its own as it has developed, sometimes in unforeseen ways.

It was expected from the outset that there would be outcomes in terms of the pupils and their mathematics, but some of the outcomes concerning the helpers (staff, students and teachers) came initially as something of a surprise to all concerned. Both sets of outcomes have come to be seen as of equal and interacting importance.

Through the workshops pupils are provided with an opportunity to engage in mathematical activity in a less formal atmosphere than is often possible in school; they are able to see mathematics in a wider context through their association with university mathematicians and other helpers involved. They learn some familiar mathematics with a different slant, as well as getting a taste of some topics they would normally not meet until later in their schooling, if at all. The workshops also offer them the opportunity to experience the pleasure of creating their own mathematics in collaboration with others, often from other schools, with whom they have sometimes struck up friendships by the exchange of telephone numbers after the sessions.

Their teachers, too, are able to talk with colleagues from other schools as well as with students and lecturers from the university, something rare in these days of overfull commitments for teachers and the changes in INSET programmes. They are able to see some ways in which pieces of university mathematics can be adapted for use with younger pupils and hence to extend their own perceptions of their role.

University staff in turn are able to see something about the complexities of the teaching process at that level, normally something outside their general experience and expertise.

Participating students are able to glean something of all the above: how pupils think and how to handle the problems of understanding which inevitably arise. They learn something about group dynamics and how to help such groups to become a working unit. They begin to think about the timing of intervention, trying to avoid either leaving the pupils too long to their own devices or intervening too soon when pupils are struggling with a problem (because they

observe the pleasure of success gained from something achieved with peer support without direction from a 'teacher').

Some students come to the workshops with the idea of teaching already in their minds while others are just curious to see what the workshops are about. The former welcome the opportunity the workshops give them to gain some experience of teaching, by working with pupils in a supportive environment alongside experienced teachers, while some of the latter have said that the experience had drawn them to the idea of teaching because of the insights the experience gave them of its possible rewards and challenges.

While much comes from participation in the workshops themselves, much also comes from lively discussions while clearing away after the sessions. During this time questions are raised and discussed by all helpers and this contributes to the cementing of a sense of belonging on the part of all those involved.

The workshops provided, and still provide, a wider range of outcomes for a wider range of participants than was originally seen by its initiators. Moreover, they are ongoing, developing new topics, and maturing in style and content by participants reflecting on their educational and social outcomes.

We would welcome contact with any colleagues who have tried similar activities. The person to contact concerning the Workshops is J.P. Sproston, School of Mathematics, University of Hull, Hull, HU6 7RX.

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\* Kopp P.E., Duffin J. and Simpson A., (1993) "The Hull Mathematics Workshop: Content and Outcomes", *Mathematics Education Review*, 2, pp 44-55.

## SEVENTH SCHRÖDINGER LECTURE

The seventh Schrödinger Lecture will be given by Dr M.F. Perutz, Nobel Laureate, of the MRC Laboratories, Cambridge, on Thursday 17 March 1994 at 5.30 pm in the Great Hall at Imperial

College, London. The title of the lecture is "Living Molecules". All enquiries for tickets to Dr John Vandridge-Ames, Registry, Imperial College, London SW7 2BZ.

## THE RESEARCH RATINGS

Most of us in Higher Education are having to come to terms with the effects of the recent research ratings exercise and its consequences, for both income and status. Those who have done well will be feeling slightly complacent and those who have done badly will be wondering what to do. If you got a "3" you will not be sure what to think. Much will depend on the attitude from above. It can vary from "That was a disaster, should we close the department down?" to "You are doing better, what can we do to improve the rating?". Whatever the outcome, it is now quite clear that ratings play a very important role in the life of any academic department in the country.

We are aware of a growing feeling throughout the academic community that those departments which have representatives on a panel are treated more favourably. Surely mathematicians and statisticians could try to improve the system. We propose a system which we believe is a fairer and cheaper way to arrive at the ratings. We make the assumption that the ratings are an attempt to evaluate the work and reputation of individual departments and not individuals.

First let us look briefly at the present method. First each department (here this is used as a shorthand for the appropriate unit in an institution) has to spend a considerable effort to produce the paper work and make various decisions based on what they think the rules might be. It is interesting to note that during the whole exercise the players do not know the rules, which additionally may change during the course of play. Then a team of the "great and good" is chosen. However great or good the team members are, they will bring their own values and attitudes to the task. The task itself will be quite daunting given the mountains of paper work that will have been presented. Given that the rules are not clear no department will leave out anything which might seem to be helpful to their case. So we are left with a small group of individuals doing their best to evaluate every department in the country. However hard they try, it is almost certain that a different panel would end up with a different set of ratings. Thus the income to

any department depends on the composition of the committee. It is not clear that this is a reasonable way to judge the fate of departments.

It is now necessary to give an alternative proposal which will be both more consistent and cheaper. Each department will be asked to list the individuals whom it wishes to have considered as part of the research exercise. Making the assumption that this will consist of the active mathematicians and statisticians, this list will contain the totality of active academic research workers in the country. The next stage is to ask all these researchers to rate every other department (not their own). The rating should then be the mode of the ratings awarded. This will use all the available expertise to make the assessment. It seems likely that this will give an accurate rating of departments by how well known their research activity is and this equates well with the descriptions laid down by the HEFC.

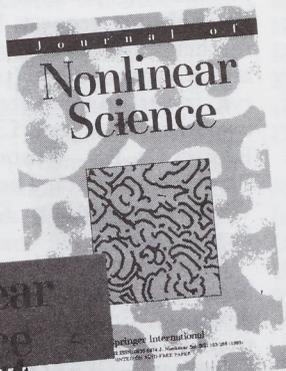
There are two difficulties which need to be addressed. The first concerns the subject description. Should the departments label the people as "Pure Mathematicians", "Applied Mathematicians" and "Statisticians" and each individual then rate their appropriate subject? The other difficulty would be that a branch of mathematics which is only studied by a limited number of people in Britain might well be lowly rated because few would have heard of the work whilst being of high quality and known internationally. We note that this is a problem within the current system. One way to tackle this would be for the individuals to describe their mathematical research area, perhaps using AMS classifications, and then weighting the results according to the overall numbers involved in the process.

The above procedure will have the advantages of being more consistent and we believe more valid. We urge the mathematical science community to take these ideas seriously because the openness and fairness of systems which will affect people's lives as well as the future of departments is a matter of great importance.

A. Camina and G. Janacek  
University of East Anglia

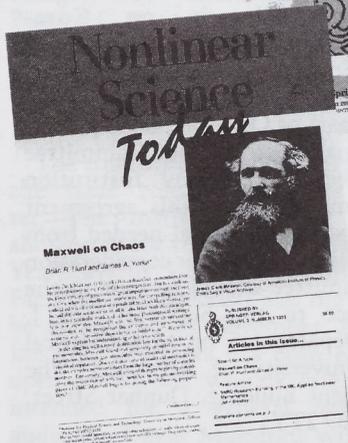
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## BRITISH COMBINATORIAL COMMITTEE

At the Business Meeting held during the Fourteenth British Combinatorial Conference (5-9 July 1993, University of Keele) a new Committee was elected to serve until the next Conference. At a subsequent meeting of the newly elected Committee, members to serve as Honorary Secretary and Honorary Treasurer were chosen. The members of the new Committee are as follows: Professor P.J. Cameron (Chairman); Dr I. Anderson (Treasurer); Dr M.H.G. Anthony; Dr J.W.P. Hirschfeld; Dr C. McDiarmid; Professor C.St J.A. Nash-Williams; Dr J. Sheehan (Secretary); Ex Officio: Dr R.J. Wilson (Bulletin Editor), Dr P. Rowlinson, Local Organizer for the 1995 Conference.

The Committee is grateful for financial support received from the London Mathematical Society Conference Fund towards the costs of the above-mentioned Conference.

**Fifteenth British Combinatorial Conference** The Committee wishes to announce that the next British Combinatorial Conference will be held at the University of Stirling from 3 to 7 July 1995.

**British Combinatorial Bulletin** This Booklet, published annually, contains

news of Conferences and Colloquia on Combinatorial topics, a list of British mathematicians known to be interested in Combinatorics and information about forthcoming research publications. It is available on request free of charge to mathematicians resident in Great Britain and at a cost of £3.00 (to cover postage for two issues) to interested persons resident overseas. Please send £3.00 sterling to the Editor, Dr R.J. Wilson, Department of Pure Mathematics, The Open University, Walton Hall, Milton Keynes MK7 6AA, England.

**One-Day Colloquia on Combinatorial Topics** The British Combinatorial Committee has again decided to make a limited sum of money available for the support of One-Day Colloquia on Combinatorial topics. The Committee will, however, expect any Institution requesting money under this agreement to provide part of the total needed from its own funds. Proposals for consideration by the Committee should be sent in the first instance to the Secretary, Dr J. Sheehan, Department of Mathematical Sciences, University of Aberdeen, The Edward Wright Building, Dunbar Street, Aberdeen AB9 2TY.

## STOCHASTIC PARTIAL DIFFERENTIAL EQUATIONS

Infinite-dimensional Markov processes have been the focus of intense activity over the last twenty years. These processes arise naturally as models for those physical and biological problems in which one is modelling a stochastically evolving distribution over a continuous space. However, although it is often possible to formulate a problem in the infinite dimensional language of stochastic partial differential equations, we are far from a complete understanding of the associated infinite-dimensional random processes.

The programme, under the auspices of the International Centre for Mathematical Sciences, to be held from 21 March to 1 April 1994 at the University of Edinburgh, will take the form of two weeks of intensive study, with some visitors in residence for longer. The two weeks will be broken into intensive sessions focusing on Measure

Valued Processes, the approach to Stochastic Partial Differential Equations provided by Skorohod integrals and Malliavin Calculus, and Mean Field Theory (Ginzburg/Landau models converging to deterministic equations etc). Two days will be devoted to applications, with biologists and engineers talking about the systems they would like to model and the difficulties they face.

Confirmed participants are D.A. Dawson (Carleton), P.J. Donnelly (QMW), S.N. Evans (Berkeley), K. Fleischmann (Berlin), T.J. Lyons (Imperial), B. Oksendal (Oslo), E.A. Perkins (UBC) and F. Rezakhanlou (Berkeley). For further details contact A. Etheridge, Department of Mathematics, University of Edinburgh, James Clerk Maxwell Building, The King's Buildings, Edinburgh EH9 3JZ, e-mail: alison@uk.ac.ed.castle.

## 1994 BRITISH MATHEMATICAL COLLOQUIUM Preliminary Announcement

The 46th British Mathematical Colloquium will be hosted by the University of Wales College of Cardiff from 28 to 31 March 1994. Lectures will take place from the evening of Monday 28 until the afternoon of Thursday 31 March.

The overseas speakers are H.L. Montgomery, Michigan (Monday), R. Askey, Wisconsin (Tuesday) and L.G. Valiant, Harvard (Wednesday). Other invited speakers include S. Carter, D.E. Edmunds, D.E. Evans, K.J. Falconer, W.A. Hodges, D.A. Jordan, N.G. Lloyd, F.C. Piper, E.G. Rees, C.M. Series, F. Smithies, J.B. Twomey and D. Williams.

In addition to the usual programme of lectures and splinter groups, new specialist sessions will be held in several areas, including Group Theory and Number Theory. Lectures in these are intended for specialists, and speakers will include K.W. Gruenberg, D. F. Holt, M.J. Dunwoody, R.R. Hall, R.W.K. Odoni and J.-M. Deshouillers.

More details will be given in a later Newsletter, which will include a booking form. Enquiries should be addressed to Dr F.T. Brawn, School of Mathematics, U.W.C.C., 23 Senghennydd Road, PO Box 926, Cardiff CF2 4YH.

### ISAAC NEWTON INSTITUTE

The following are some snippets from the Isaac Newton Institute Newsletter. The Institute building has been shortlisted for the Du Pont 'Office of the Year' award run by the Institute of Facilities Management and the result will be announced in November. A series of Institute Seminars has been established, open to anyone who is interested and intended for a general mathematical audience. David Mumford will give the Marr Lecture on 22 November 1993 in this

series. A complete list of the eight seminars planned will be circulated. In the first two weeks of November, participants in the Computer Vision programme will study the ideas of machine learning and expert systems, how to build systems which learn from examples and can question experts; although a classic goal of artificial intelligence, much recent progress has come from systems which are fundamentally statistical, including neural and belief networks.

### THE CLAUDE BERNARD LECTURE

Professor Michael R. Herman, Directeur de recherche, CNRS, Ecole Polytechnique, Palaiseau will give the Claude Bernard Lecture on Thursday 18 November 1993 at 17.30 at the Royal Society, 6 Carlton House Terrace, London SW1. The ergodic hypothesis is believed necessary for the foundation of equilibrium statistical mechanics. The rigorous mathematical results in hamiltonian dynamics both from an historical point of view and its recent developments, will be discussed. These results show that in general the

ergodic hypothesis is false. Some open problems on the question of topological stability in hamiltonian dynamics and the possible changes of the ergodic hypothesis will be presented.

The Claude Bernard Lecture is given annually by a senior French scientist as part of an exchange agreement with the Academie des Sciences of the Institut de France and the Royal Society. All are welcome to attend. Tea will be served at 17.00. For further information telephone 071 839 5561 ext 218.

### BORIS MOISHEZON

Professor Boris Moishezon of Columbia University, New York, died on 25 August 1993 at the age of 55.

## NATO ADVANCED STUDY INSTITUTE FINITE AND LOCALLY FINITE GROUPS

A meeting with this title has been arranged to take place at Bosphorus University, Istanbul, Turkey, during the period 14 to 27 August 1994. The main aim is to present the current state of knowledge in some areas in which these fields seem particularly to overlap, and to explore ways in which they may influence each other in the future. Several speakers will present short courses of about three lectures, at a level which is intended to be accessible to senior postgraduate students working in areas related to group theory, as well as being of interest to more experienced workers. There will also be some opportunity for contributed talks. The main speakers are as follows: M.W. Liebeck, J. Saxl, G. Seitz, "Finite groups of Lie type and finite permutation groups"; J.I. Hall, B. Hartley, R.E. Phillips, A.E. Zalesskii, "Simple locally finite groups and finitary linear groups"; R.M. Bryant, I.M. Isaacs, A. Turull, "Topics in repre-

sentation theory"; A. Shalev, "p-groups"; A.V. Borovik, "Groups of finite Morley rank"; F. Leinen, "Existentially closed groups".

The meeting is sponsored by NATO, and partial support will be offered to some participants. The organizing committee consists of B. Hartley, G. Seitz, I. Guloglu, A. Feyzioglu. Attendance is by invitation, and numbers may be limited. Those interested in further information should write to Professor I. Guloglu, Department of Mathematics, Middle East Technical University, Ankara, Turkey, asking to be placed on the mailing list. Specific enquiries may be addressed to Professor B. Hartley, Department of Mathematics, University of Manchester, Manchester M13 9PL, e-mail: mbbgsbh@uk.ac.mcc.cms. Postgraduate students who wish to attend will be asked to provide a short letter of support from their supervisors.

## HARMONIC ANALYSIS AND PARTIAL DIFFERENTIAL EQUATIONS

Under the auspices of the International Centre for Mathematical Sciences, and with financial support from SERC, a research programme on Harmonic Analysis and Partial Differential Equations will be held in Edinburgh from 1 April - 31 July 1994. One of the main aims of the programme will be to focus on the interaction between the two areas of analysis. A number of analysts will be resident in Edinburgh for substantial periods of time, with informal activities and seminars taking place throughout. In addition, there will be three periods of more concentrated activity as follows.

5-15 April: An Instructional Conference consisting of expository lectures by E.M. Stein and C.E. Kenig, with introductory series by A. Carbery and F. Soria. Professor Stein will lecture on "Aspects of harmonic analysis related to curvature and oscillatory integrals" and Professor Kenig on "Well-posedness and local smoothing effects in nonlinear hyperbolic and disper-

sive partial differential equations".

29 May - 4 June: A Workshop on harmonic analysis and oscillatory integrals, together with their uses and applications in hyperbolic and dispersive partial differential equations.

17-23 July: A Workshop focusing on elliptic differential equations and related areas of harmonic analysis.

The programme is being directed jointly by A. Carbery and D.E. Edmunds (Sussex) and T.A. Gillespie (Edinburgh), with an Advisory Committee comprising of E.B. Fabes (Minnesota), C.E. Kenig (Chicago) and E.M. Stein (Princeton).

Anyone interested in participating in any part of the programme should contact T.A. Gillespie, Department of Mathematics and Statistics, University of Edinburgh, James Clerk Maxwell Building, The King's Buildings, Edinburgh EH9 3JZ, e-mail: tagicms@edinburgh.ac.uk, fax: 031-650 6553.

## FÖRDERPREIS

Die Gesellschaft für mathematische Forschung vergibt 1995 für Arbeiten aus dem Fachgebiet Angewandte Mathematik und Numerik den Förderpreis des Mathematischen Forschungsinstituts Oberwolfach.

Der Preis wird an Mathematiker (innen) bis zum Höchstalter von 35 Jahren aus Europa vergeben. Bei besonders hervorragenden Leistungen kann unabhängig

vom Fachgebiet zusätzlich ein weiterer Preis vergeben werden. Vorschlagsberechtigt sind Hochschullehrer aus Europa. Vorschläge müssen bis zum 31. Januar 1994 eingegangen sein.

Nähere Informationen erhalten Sie bei der Geschäftsstelle des Mathematischen Forschungsinstituts Oberwolfach, Albertstraße 24, D-79104 Freiburg, Germany.

## THE A.C. AITKEN CENTENARY CONFERENCE

This is the first announcement of a five day conference to celebrate the 100th anniversary of the birth of the famous New Zealand mathematician A.C. Aitken, who was born in Dunedin on 1 April 1895. In keeping with Aitken's own interests, the conference will include invited and contributed papers on the three general themes of Actuarial Mathematics, Numerical Methods and Statistics. The conference will be held from 28 August to 1 September 1995 at the University of

Otago, Dunedin, New Zealand. It will incorporate the 3rd Pacific Statistical Congress and the Annual Meeting of the New Zealand Statistical Association.

For further information and to be put on the mailing list, contact: The Aitken Conference Secretary, Department of Mathematics and Statistics, University of Otago, PO Box 56, Dunedin, New Zealand, telephone: 64-3-479-7774, fax: 64-3-479-8427, e-mail: [casn@maths.otao.ac.nz](mailto:casn@maths.otao.ac.nz).

## UNIVERSITY OF ST ANDREWS



### School of Mathematical and Computational Sciences

## LECTURESHIP IN PURE MATHEMATICS

Applications are invited for a Lectureship in Pure Mathematics within the School of Mathematical and Computational Sciences. Preference will be given to applicants with research interests in analysis or a related area. The appointment will be from October 1994. Please quote reference ML89/3.

Salary will be on the appropriate point of the Academic salary scale ie £12,828 - £25,107 per annum.

**Application forms can be obtained from the Head of Personnel Services, University of St Andrews, College Gate, North Street, St Andrews, Fife KY16 9AJ (or by telephoning 0334 62562/62563 during office hours or 0334 62571 out of hours), to whom completed application forms accompanied by a CV and letter of application should arrive not later than Friday 19 November 1993.**

The University operates an Equal Opportunities Policy.

## INTERNATIONAL CONFERENCE ON NONLINEAR DYNAMICS AND PATTERN FORMATION IN THE NATURAL ENVIRONMENT

An International Conference on Nonlinear Dynamics and Pattern Formation in the Natural Environment will be held in The Netherlands from 4 to 7 July 1994. The conference aims at the communication of new results and the exploration of new ideas concerning the mathematical theory of nonlinear dynamics and the study of pattern generation phenomena in the natural environment. Phenomena of this type occur in a multitude of scientific areas and application fields. There is an intimate relationship between new insights in the mathematical aspect of nonlinear pattern formation and the apprehension of these phenomena. The conference will therefore have two, partly overlapping, main themes: one in which the emphasis is put on generally applicable mathematical theories and techniques and one in which the phenomenology of pattern evolution in various areas is discussed. Recently, both these themes have been the subject of challenging new developments. The main purpose of the conference is to stimulate the interaction between theory and applications.

The programme of the conference consists of plenary and parallel sessions. In the plenary sessions, a keynote speaker will give a state-of-the-art survey on one of the main topics of the conference. There will be invited, contributed and poster presentations during the parallel sessions. The structure of the parallel sessions will be based on the scientific topics. Some of the sessions will be devoted to one of the mini symposia

incorporated in the conference. There will be a number of mini symposia incorporated in the conference. Among these will be: a meeting of the EC-cooperation project "Spatio-Temporal Evolution of Patterns in Nonlinear Mechanics" and a workshop on "Nonlinear Phenomena in the Climate System".

Abstracts can be submitted on the subjects: *Nonlinearity Dynamics*: asymptotic analysis, model reduction, modulation equations, stability and bifurcations, dynamics systems, attractors and chaos, variational principles and microstructure, numerical methods, computational science, parameter identification, coherent structures; *Pattern Formation*: general fluid dynamics, oceanography, meteorology, reaction-diffusion problems, combustion, population dynamics, geophysical morphodynamics, biological morphodynamics, crystal growth, theory versus data. Deadline for submission of abstracts is 15 January 1994. The abstract may consist of maximally two pages. Each abstract should indicate the name of the author(s), the mail (and e-mail) address, telephone and fax number and the subject of the scientific programme it relates to. Authors are urged to send in their abstracts in two ways, both as (LA)TEX-file by electronic mail to: [conf-patterns@math.ruu.nl](mailto:conf-patterns@math.ruu.nl) and as a hard copy in twofold to Novep Conference Organisers, PO Box 74144, 1070 BC Amsterdam, The Netherlands, telephone + 31 20 6836243, fax + 31 20 6837727.

## INTERNATIONAL COLLOQUIUM ON DIFFERENTIAL GEOMETRY

The seventh international colloquium on Differential Geometry will be held on the topic "Analysis and Geometry in Foliated Manifolds" at the University of Santiago de Compostela, Spain, from 26 to 30 July 1994. The invited speakers are G. Hector, J. Heitsch, S. Hurder, P. Molino, J. Roe, C. Schochet and E. Vogt.

Participants wishing to present papers

are asked to submit an extended summary of about 500 words with completed registration cards by 1 May 1994. For further information write to Departamento de Xeometria e Topoloxia, Facultate de Matematicas, Universidade de Santiago de Compostela, 15706 Santiago de Compostela, Spain, fax: 34 81 597054, e-mail: [emaciasvo@seins.usc.es](mailto:emaciasvo@seins.usc.es).



Sir John Frank Charles Kingman was born in 1939 and educated at Christ's Hospital and Pembroke College Cambridge, where he was Smith's Prizeman in 1962. A succession of appointments culminated in a Professorship at Oxford in 1969, and he became Vice-Chancellor of Bristol in 1985. A distinguished statistician and probabilist, he has written on such topics as queueing theory and genetic diversity. He has been a director of various industrial concerns, and was the President of the Royal Statistical Society from 1987 to 1989. In 1971 he was elected to Fellowship of the Royal Society and received the Royal Medal in 1983. He was knighted in 1985. The London Mathematical Society awarded him the Junior Berwick Prize in 1967 and he was the Society's 65th President from 1990 to 1992.

## DIARY

The diary lists Society meetings and other events publicized in previous issues of the Newsletter. For further information, refer to the figure in brackets, which is a cross reference to the LMS Newsletter number.

### 1993

#### NOVEMBER

- 10-11 Mathematical Models in Finance Discussion Meeting, Royal Society, London (209)
- 17 Save British Science, 1993 General Meeting, Imperial College, London (208)
- 19 London Mathematical Society Meeting, London
- 19 Edinburgh Mathematical Society Meeting, Glasgow (209)

#### DECEMBER

- 8-9 Mathematical and Statistical Aspects of DNA and Protein Sequence Analysis Discussion Meeting, Royal Society, London (209)
- 8-12 Metastability and Hydrodynamic Limits for Interacting Particle Systems Symposium, Isaac Newton Institute, Cambridge (209)
- 10 Professor Philip Holgate, Memorial Meeting, Birkbeck College, London (208)(209)
- 10 Edinburgh Mathematical Society Meeting, Napier (209)

### 1994

#### JANUARY

- 14 Edinburgh Mathematical Society Meeting, Edinburgh (209)
- 21 London Mathematical Society Meeting, London

#### FEBRUARY

- 11 Edinburgh Mathematical Society Meeting, Edinburgh (209)
- 18 London Mathematical Society Meeting, Newcastle

#### MARCH

- 7-25 Workshop on Fluid Mechanics, ICTP, Trieste, Italy (207)
- 11 Edinburgh Mathematical Society Meeting, Dundee (209)
- 18 London Mathematical Society Meeting, London
- 21-25 Matrix Geometry and Physics, LMS Invited Lectures, King's College, London (207)
- 21-25 Symplectic Geometry of Moduli Spaces Conference, France (209)

#### MAY

- 6 Edinburgh Mathematical Society Meeting, Aberdeen (209)
- 13-14 Two-day London Mathematical Society Meeting, Leeds
- 16-27 Workshop on Commutative Algebra and its Relation to Combinatorics and Computer Algebra, ICTP, Trieste, Italy (207)

#### JUNE

- 1-7 Algebraic Topology Conference, Barcelona, Spain (201)
- 4 Edinburgh Mathematical Society Meeting, St Andrews (209)
- 13-17 Elliptic & Parabolic Problems Conference, Pont-a-Mousson, France (204)
- 13-17 Hyperbolic Problems - Theory, Computations & Applications Conference, Stony Brook, New York, U.S.A. (204)
- 17 London Mathematical Society Meeting, London

#### JULY

- 20-27 3rd Souslin Conference, Saratov, Russia (209)

#### AUGUST

- 3-11 International Congress of Mathematicians, 1994, Zurich, Switzerland (189)(197)(207)
- 15-26 Advanced Workshop on Algebraic Geometry, ICTP, Trieste, Italy (207)
- 18-25 Third International Conference on Group Theory, Pusan, Republic of Korea (209)

#### OCTOBER

- 10-28 ~~Third, York (207)~~ Workshop on Variational and Local Methods in the Study of Hamiltonian Systems, ICTP,

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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 071- 437 5377, fax 071-439 4629, e-mail lms@uk.ac.kcl.cc.oak.