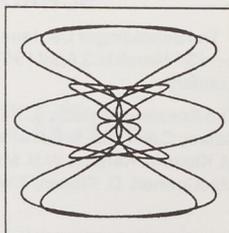


THE LONDON MATHEMATICAL SOCIETY NEWSLETTER



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The *Newsletter* is published monthly, except in August and September. Items for inclusion (with the exception of advertising material) should be sent to the Editor, to arrive before the tenth day of the month prior to publication. Advertisements, and general enquiries about the Society, should be addressed to Susan Oakes at the LMS Office.

Forthcoming Meetings

Friday 21 November 1986, Royal Society
Annual General Meeting
(I.M. James, J.R. Hubbuck)

THE BURLINGTON OBSERVATORY

Members may know that the Society shares office accommodation within Burlington House with the British Astronomical Association. The following is an extract from a note which will appear in the B.A.A. Newsletter and indicates that the L.M.S. Administrator, Susan Oakes, may secure a place in astronomical history.

"The Sun was streaming through the Observatory's open shutter, the kitchen window, when the Astronomer in Charge (A.I.C.) mounted the giant telescope, a 50 mm Predictor Bearing Elbow Telescope No. 8 Mark 1, ex W.D. circa 1942, on its inadequate pedestal, one warped vintage kitchen cabinet, and after some difficulty found the Sun. Projecting a brilliant solar image

of about 260 mm diameter on to the large screen provided, the kitchen ceiling, he strove manfully to attain a good focus. He was at first alarmed, and then delighted, to hear a cry from his Mathematical Assistant, Sue of the L.M.S., who though she saw a blemish on the solar disc. Wiping the lens and eyepiece to ascertain that the blemish was not simply amplified dust, the A.I.C. confirmed that a sunspot had indeed been discovered - - probably the first for a deca-month! Immediately a despatch was prepared for the Solar Section Director claiming the spot for Susan, who now awaits confirmation, and the return of the group, forever to be known as *Susie's Sunspot*."

SCHRODINGER CENTENARY CONFERENCE

The Schrödinger Centenary Conference will be held 31 March to 3 April 1987 at Imperial College, London.

The Speakers include: L. Pauling, S. Weinberg, A. Salam, C.N. Yang, S. Fukui, M. Perutz, W. Thirring, M. Klein, M. Karplus, W.H. McCrea, J.T. Lewis, J.R. MacConnell, D. Flamm, T.W. Kibble, O. Hittmair,

S.W. Hawking, J. Dorling, A.D. Buckingham, J.S. Bell, J.A. Pople, J. Wess, M.J. Seaton, A.M. Polyakov.

Further details are available from Dr. P. Dolan, Mathematics Dept., Imperial College.

NUMERICAL METHODS IN FLUID MECHANICS

The Seventh GAMM Conference on Numerical Methods in Fluid Mechanics will take place from 9 - 11 September 1987 at the Faculte des Sciences Appliquées, UCL, Louvain-la-Neuve, Belgium.

The subjects of the conference are:

1. Theory of numerical methods in fluid mechanics: finite difference methods, finite element methods, spectral methods, etc. The emphasis will be on the development of

novelties in methods.

2. Application of numerical methods in fluid mechanical problems in Aerodynamics, Hydrodynamics, Propulsion, Fluidmachinery, Nuclear Reactor Technology, Meteorology, Biomechanics, etc.

Further details are available from: M. Deville, Unité de Mécanique Appliquée, 2, Place du Levant, B-1348 Louvain-la-Neuve (Belgium).

MATHEMATICAL MODELLING

In recent years we have become increasingly concerned with the impact of scientific and technological developments on the welfare and future of mankind. Mathematical Modelling has become a powerful tool for solving many complex problems presented by these developments. The objective of the Sixth International Conference on Mathematical Modelling is to bring together researchers and educators from various disciplines including the traditional and emerging interdisciplinary areas to exchange ideas and discuss the philosophy and common problems encountered in the mechanics and methodology of mathematical modelling along with its applications. In view of the rapidly increasing activity in mathematical modelling, such an exchange is expected to contribute to the evolutionary growth of the art and science of mathematical modelling, and thereby to solve

many current problems confronting mankind, and to provide an insight into the future.

The Sixth International Conference on Mathematical Modelling: An Interdisciplinary Integrative Forum for Researchers and Educators in Engineering, Economics, Biological, Medical, Environmental, Social and Other Sciences will be held at Washington University in St. Louis. Several distinguished contributors to mathematical modelling are expected to present general lectures and invited papers. Participation in the conference is open to all interested persons.

Further details may be obtained from Professor Ervin Y. Rodin, Dept. of Systems Sciences and Mathematics, Washington University, Box 1040, St. Louis, Missouri 63130, USA.

COMBINATORIAL TABLES

David Singmaster, Robin J. Wilson and William Wingate are preparing a book of combinatorial tables. This will collect together in one place the basic definitions, formulae, tables, diagrams etc. for all the standard combinatorial structures.

They need your help! In order to make the book as useful as possible to you, they would be most grateful for your answers to the following questions.

- What items would be of particular interest to you!

- Do you have, or know of, any tables or other material which could usefully be incorporated (all contributions, would of course, be properly acknowledged in the text).

If you have any comments or information, or if you would like to have a copy of the draft list of contents to comment on, please write to: W.J.G. Wingate, Faculty of Mathematics, The Open University, Walton Hall, Milton Keynes, England, MK7 6AA.

LONDON MATHEMATICAL SOCIETY

ANNUAL GENERAL MEETING

FRIDAY 21 NOVEMBER 1986 at 3.00

Professor J.R. HUBBUCK (Aberdeen)
at 3.10

Decomposable Hopf Spaces

Professor I.M. JAMES, FRS (Oxford)
will give his Presidential Address at 5.00 on

Spaces

Tea will be served at 4.10

The meeting is at The Royal Society,
Wellcome Lecture Hall
6 Carlton House Terrace, London SW1

The Annual Dinner

will be at the Royal Commonwealth Society
Northumberland Avenue, London WC2
at 6.30 pm

All interested are very welcome

PLEASE NOTE EARLY START AT 3.00 PM AND
CHANGE OF VENUE

BERNOULLI SOCIETY, TASHKENT 1986

The Bernoulli Society for Mathematical Statistics and Probability was founded in 1975 as a Section of the International Statistical Institute, and as a successor to each of (i) the European Meeting of Statisticians, (ii) the International Association for Statistics in the Physical Sciences and (iii) the Committee for Conferences on Stochastic Processes. The idea of such a body had been envisaged earlier by the late Jerzy Neyman, who also suggested the use of the name "Bernoulli", a use later given formal approval by a present member of that family. The connexion is much-prized by the Society, which regularly makes use of the Bernoulli heraldic colours (argent and vert) in its notices and brochures. The ISI is a select Academy with membership by election, originally largely composed of government statisticians with a primary interest in official statistics, while in contrast to that the Bernoulli Society is open to all on payment of a small membership fee, and (as its title indicates) concentrates its activities on those aspects of statistics which are directly or potentially susceptible to mathematical modelling or analysis.

For the first ten years of its existence the Bernoulli Society has confined itself to the organisation of geographically local or thematically limited meetings involving fairly small numbers of participants, and these have proved to be extremely successful. Recently the Council decided that the time had come to launch a plenary Congress with world-wide membership covering the subject as a whole. For various reasons it was felt that an Asian venue would be appropriate, and accordingly an invitation to hold the Congress in Tashkent, in the Soviet Socialist Republic of Uzbekistan, in Central Asia, was accepted with enthusiasm.

An international Programme Committee was set up under the chairmanship of K. Krickeberg (Paris), with Sir David Cox and D.G. Kendall as UK representatives, and with regular links with the Soviet Organising Committee via Academician Yu. V. Prohorov. Detailed planning started about 18 months in advance, and much of the programme was finalised at the 4th Vilnius Conference on Probability in July 1985. The scientific sessions, 35 in number, were channelled into four parallel streams of invited and orally presented contributed papers, with the possibility of poster presentation for the (numerous) remaining contributed papers, and with pre-Congress distribution of the printed abstracts of all papers. The selection of the orally presented contributed papers were carried out by session chairmen assisted by panels of referees. In the event the total number of orally presented papers planned in both categories was 291, with a small variation associated with

last-minute changes, illness, etc. The quality of the better papers was outstanding, and while some of the remainder were rather weak, the quality on the whole was excellent for an open Congress of this kind.

The lectures were held in two large buildings in the centre of Tashkent about eight minutes walk from one another. Projection facilities were good, and simultaneous translation into the Congress languages (English and Russian) was regularly provided. The numerical size of the Congress (about 1200 people) astonished everyone, but the organisation worked out by our hosts successfully absorbed what must have been a great strain. It should be noticed that the Bernoulli Congress succeeded in attracting this large number despite the fact that it nearly coincided with the International Congress of Mathematicians in Berkeley.

From the outset all members of the Program Committee were fully committed to the view that participation in the Congress should be open to everyone having an interest in Mathematical Statistics and Probability, and it is gratifying to be able to report that this aim appears to have been attained.

The 35 sessions of the Congress (typically with about 8 papers orally presented in each session) were as follows.

1. Abstract Inference
2. Inference for stochastic processes
3. Cross-validation
4. Data analysis
5. Design of experiments
6. Asymptotic methods in statistics
7. Multivariate analysis
8. Time series
9. Self-similar processes
10. Point processes
11. Boundary-crossing problems
12. Extreme values, strength of materials
13. Epidemiology
14. Geology and geophysics
15. Hydrology and meteorology
16. Biological models and genetics
17. Foundations of probability theory
18. Stochastic simulation
19. Non-standard analysis in probability theory
20. Combinatorial analysis in probability theory
21. Statistical computing
22. Queueing theory
23. Empirical processes
24. Markov processes
25. Random fields and percolation theory
26. Time evolution of particle systems
27. Probability and theoretical physics
28. Diffusion on manifolds
29. Stochastic calculus

30. Stochastic geometry
31. Large deviations
32. Rates of convergence
33. Functional limit theorems
34. Probabilities on algebraic structures
35. Miscellaneous

In addition was an Opening Plenary Lecture on "Algorithms and Randomness" by A.M. Kolmogorov and V.A. Uspensky, delivered by the latter. Academician Kolmogorov's absence (through illness) from a Congress which he had inspired from the outset was a great disappointment to all; a letter of greetings, with wishes for a speedy recovery, was sent to him by the UK participants.

On the last day of the Congress there were a number of Round Table Discussions, notably one on the History of Statistics.

An international Book Exhibition relating to Mathematical Statistics, Probability and Combinatorics was very well supported by publishers and attracted great interest.

The recreational facilities were numerous and included the choice of a visit to Bokhara, a visit to Samarkand, or an exhibition into the Tien Shan mountains.

Discussions about the next Congress are now under way. It seems likely that one will take place, and possible that a 4-year cycle will be followed. If that is so, then the coincidence with the ICM will be perpetuated, and in the view of the

enormous size of both meetings such a clash is perhaps positively to be welcomed. On this present occasion very generous provision for the expenses of UK participants in these two meetings was made by the Royal Society on the recommendation of the National Committee for Mathematics, with supplementary support by the British Council and other bodies. It will obviously be prudent to note that a need for the simultaneous funding of the two meetings may now recur at 4-yearly intervals.

The welcome to Tashkent given to us by Academician S.Kh. Sirajdinov and his colleagues was exceedingly warm, and delighted all participants. The interest taken in the Congress by national and local newspapers, radio and television was very great and continued throughout its duration.

The work involved in preparing for the Congress must have imposed a back-breaking load on our Soviet colleagues, but they never complained. We hope that they realise how much their hard work is appreciated. For they did not merely make this Congress possible; they completed the foundation of the Bernoulli Society, marvellously fulfilling the hopes of all who first envisaged it, and setting it in motion as a going concern.

This report was prepared by David Kendall, Statistics Laboratory, 16 Mill Lane, Cambridge CB2 1SB.

THE 1987 HARDY LECTURER

Council is pleased to announce that Professor Michael O. Rabin has accepted its invitation to be the 1987 Hardy Lecturer. Professor Rabin received his M.Sc. from the Hebrew University and his Ph.D. in Mathematics from Princeton University. Since 1958 he has been at the Mathematics Institute of the Hebrew University of Jerusalem where he was Rector in 1972-75. In 1981 he was appointed T.J. Watson Professor of Computer Science at Harvard University and he now divides his time between the two universities. He has received the Rothschild Prize in Mathematics and the A.M. Turing Award in Computer Science. He is a member of the Israel Academy for the Sciences and Humanities, and a Foreign Associate of the U.S. National Academy of Sciences. His research interests include mathematical aspects of computing, randomized algorithms and computer security. In 1984 he was a speaker at the British Mathematical Colloquium in Bristol.

Professor Rabin will be visiting the U.K. between 8 June and 26 June 1987 and will give about nine lectures including the 1987 Hardy

Lecture to the Society in London on Friday 19 June. He would be prepared to lecture on the following topics:

- Parallel Computations in Algebra
- Randomized Algorithms in Number Theory
- Graph Algorithms
- Control in Parallel and Distributed Computing

The lectures will be aimed at a general mathematical audience and will explain the area of research and discuss important recent results.

Institutions wishing to be visited by Professor Rabin should write to the Meetings and Membership Secretary, A.R. Pears, Department of Mathematics, King's College, Strand, London WC2R 2LS by 12 December 1986. Professor Rabin's tour will be a little shorter than recent Hardy Lecture tours and neighbouring institutions are most strongly encouraged to issue joint invitations on a regional basis. The itinerary and lecture titles will be decided by Programme Committee in consultation with Professor Rabin and the host institutions.

**UNIVERSITY OF NEWCASTLE UPON TYNE
SCHOOL OF MATHEMATICS/
COMPUTING LABORATORY**

Joint Application to a

CHAIR OF PURE MATHEMATICS

Applications are invited for appointment to a newly established Chair of Pure Mathematics.

The Chair has been established using funds allocated to enhance teaching and research in computing science, but is to be located in the Department of Pure Mathematics in the School of Mathematics. Applicants should be able to demonstrate a successful record of research in a branch of discrete pure mathematics relevant to computing science (for example algebra, mathematical logic, number theory, combinatorics or theory of computation) and have an active interest in Computing Science. The successful applicant will be expected to take a leading role in promoting and conducting joint research in mathematical aspects of computing science and in the development of mathematics teaching to computing students.

Salary will be at an appropriate point on the Professional salary scale.

Further particulars may be obtained from the Deputy Registrar, The University, 6 Kensington Terrace, Newcastle upon Tyne, NE1 7RU with whom applications (15 copies), giving the names of three referees, should be lodged not later than 15th December 1986. (Applicants from outside the U.K. may submit one copy only.)

**UNIVERSITY OF LIVERPOOL
DEPARTMENT OF PURE
MATHEMATICS
SENIOR RESEARCH ASSISTANT**

Applications are invited for a Senior Research Assistant to work with Dr. H. R. Morton on the geometry of knot polynomials. A knowledge of knot theory, 3-manifolds or related topics is necessary. Applicants should possess a Ph.D. in mathematics or expect to receive such an award in the near future.

The post is SERC-funded and is tenable for up to three years, starting on 1 April 1987 or as soon as possible thereafter.

Initial salary is within the range £8020-9495 per annum.

Applications, together with the names of three referees, should be received not later than 20 November 1986 by the Registrar, The University, P.O. Box 147, Liverpool, L69 3BX, from whom further particulars may be obtained. Late applications will be considered until the post is filled. Quote ref. RV/981./LMSN

ASSOCIATION FOR WOMEN IN MATHEMATICS

Women members of the LMS will recall a letter circulated earlier this year about a panel discussion organised by the AWM on the situation of women mathematicians worldwide, to be held at the International Congress in Berkeley. As a result of that meeting, it was decided to form a European branch of AWM.

A preliminary working meeting to discuss the form which this organisation should take will be held in Paris, from 13 - 14 December 1986.

Anyone who would like to participate in this meeting, or who has suggestions relating to the organisation, or who would be interested in joining or receiving future mailings should contact either Caroline Series, Mathematics Institute, Warwick University, Coventry CV4 7AL or Dona Strauss, Department of Mathematics, University of Hull, Newland Park, Hull HU5 2DW.

NORTH BRITISH FUNCTIONAL ANALYSIS SEMINAR

Professor A. Pelczynski (Polish Academy of Sciences, Warsaw) will give a talk entitled *Bi-orthogonal systems of random unconditional convergence* on Monday, 3rd November, 1986 at 2.30 pm and 4.30 pm in Room M503, School of

Mathematics, Merz Court, The University, Newcastle-upon-Tyne. Tea and biscuits will be served at 3.30 pm.

HISTORY OF MATHEMATICS EDUCATION

A joint meeting of the British Society for the History of Mathematics and the British Society for the History of Science on *The history of Mathematics Education in England (1800 - 1914)* will be held at the Chelsea Campus, Manresa Road, of King's College London on Saturday 10th

January 1987. Application forms may be obtained from Wg. Cdr. G. Bennett, 31 High Street, Stanford-in-the-Vale, Faringdon, Oxon. SN7 8LH and should be returned before 20th December 1986.

WEEKEND COMPUTING SCIENCE

The LMS has agreed to support a weekend meeting at which mathematicians can be introduced to some of the current ideas in theoretical computing science. The meeting will be held at the University of Sussex Conference Centre, Isle of Thorns, beginning on the evening of Friday, 22 May and ending at lunchtime on Sunday, 24 May 1987. Experts from the UK and USA will give expository talks on current

research, with special emphasis on the theory of specification and verification of programs, and the theory of concurrency. It is intended that the talks will be suitable for mathematicians who have no prior knowledge of these subjects.

Further details and an application form will be circulated with a subsequent Newsletter.

MATHEMATICS IN INDUSTRY

A Workshop on Mathematics in Industry will be held from 2 - 27 February 1987 at the International Centre for Theoretical Physics. Further details are available from Professor J.

Eells, International Centre for Theoretical Physics, 34100 Trieste, Italy.

BREAKING THE CODE

A play with the above title will open at the Theatre Royal, Haymarket, London, on Wednesday 22 October 1986. This play, written

by Hugh Whitmore, is a dramatisation of Andrew Hodges' biography of Alan Turing. The part of Alan Turing will be played by Derek Jacobi.

BOURBAKI SEMINAR

The next meeting of the Seminar Nicolas Bourbaki will be held 15 - 17 November 1986.

15 November 2.30 pm.

J. Oesterlé - *Dégénérescence de la suite spectrale de Hodge (d'après Deligne et Illusie)*

J. L. Waldspurger - *Représentation métaplectique et conjectures de Howe.*

16 November 2.30 pm.

A. Marin - *Géométrie des polynômes, coût global moyen de la méthode de Newton (d'après M. Shub et S. Smale)*

P. A. Meyer - *Calcul stochastique non commutatif.*

17 November 2.00 pm.

N. Lerner - *Principe d'incertitude et microlocalisation (d'après C. Fefferman et D.M. Phong)*

G. Metivier - *Problèmes mixtes non linéaires et stabilité des chocs multi-dimensionnels.*

Further details are available from the Institut Henri Poincaré, 11 rue P. et M. Curie, Paris 5e.