

THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 253

October 1997

FORTHCOMING SOCIETY MEETINGS

Friday-Saturday 17-18 October 1997 - Scientific Societies Lecture Theatre, London

Numerical Analysis

Friday 21 November 1997 - Scientific Societies Lecture Theatre, London

F.P. Kelly (Naylor Prize), M.R. Jerrum

Friday-Saturday 20-21 February 1998 - University of Southampton

Hyperbolic Geometry

Friday-Saturday 22-23 May 1998 - London

Joint meeting with the Irish Mathematical Society

Complex Analysis and Dynamical Systems

ANNUAL SUBSCRIPTION

The annual subscription, including publications, for the session November 1997 - October 1998 is due on 1 November 1997. Together with this Newsletter is a renewal form to be completed and returned with your remittance in the enclosed envelope.

Fully complete and return the form if you are paying by Direct Debit but wish to change your choice of publications. Bank accounts of members will be debited with the appropriate amount on 15 January 1998. Other members should either enclose a cheque (£ sterling or US\$) with their form or, if they have a UK bank account and wish to take advantage of this convenient form of payment, request a Direct Debit mandate.

As from this year, it is possible to pay by credit card. Although the facility is open to all members of the Society, it is our preference that members continue to pay by direct debit.

If the renewal form is missing from this Newsletter, contact the Society's Office (Burlington House, Piccadilly, London W1V 0NL, tel: 0171 437 5377, fax: 0171 439 4629, e-mail: lms@lms.ac.uk).

DEPARTMENTAL NEWS

Bristol University

Dr J.P. Keating has been promoted to a personal chair and Dr E.J. Collins has been promoted to a senior lectureship.

Cambridge University

Dr W.B.R. Lickorish has been appointed Head of the Department of Pure Mathematics & Mathematical Statistics.

King's College London

Professor C.J. Bushnell has been appointed as Head of the School of Physical Sciences and Engineering and Dr J.A. Erdos has been appointed as Head of the Department of Mathematics.

Queen Mary & Westfield College

The following promotions were announced in July. Professor of Probability Theory: Dr Ilya Goldsheid; Professor of Pure Mathematics: Dr Charles Leedham-Green; Professor of Mathematics and Astronomy: Dr Carl Murray; Reader in Applied Mathematics: Dr Christian Beck; Reader in Mathematics and Astronomy: Dr David Burgess; Reader in Mathematics and Astronomy: Dr Peter Coles.

ANNUAL DINNER

The 1997 Annual Dinner will be held after the Annual General Meeting on Friday 21 November at 6.30 pm for 7.00 pm at the Naval & Military Club, 94 Piccadilly, London W1. The Club requests that while on its premises, gentlemen wear a jacket and tie. The cost is £25.00 per person and members may book places for guests. The booking form, enclosed with this Newsletter, should be returned together with payment to the London Mathematical Society office by Wednesday 12 November.

PUBLICATIONS PRICING POLICY

The London Mathematical Society has a pricing structure for its journals which allows individual members to purchase them at a substantial discount. These discounted prices are intended for personal use only and the journals should be kept among your personal belongings and not deposited, even temporarily, in a

library, common room or other public area. Issues of the journals should be accessible to other mathematicians or students only with your permission, given individually in each instance.

GRESHAM COLLEGE GEOMETRY

During the 1997 Autumn semester three Public Lectures in Geometry will be given by Professor Ian Stewart (Gresham Professor of Geometry) 'Hearing the Shape of a Drum', Wednesday 15 October at 1.00 pm, Gresham College, 'Travels with my Aunt', Wednesday 29 October at 1.00 pm, Gresham College and 'Beyond the Four Colour Theorem', Wednesday 19 November 5.30 pm at Kingsway College, Sidmouth Street, London WC1. Admission is free and without tickets. Further details of the lectures are available from: Gresham College, Barnard's Inn Hall, Holborn, London EC1N 2HH; tel: 0171-831 0575; fax: 0171 831 5208; e-mail: enquiries@gresham.ac.uk; web site: <http://www.gresham.ac.uk>.



The Royal Society

QUANTUM COMPUTATION: THEORY AND EXPERIMENT

DISCUSSION MEETING ON 5-6 NOVEMBER 1997

at the Royal Society, 6 Carlton House Terrace, London SW1

Organizers:

Dr. A. Ekert, Professor R. Jozsa and Sir Roger Penrose

Speakers and Chairmen:

C.H. Bennett (New York), W. Wootters (Massachusetts), A. Zeilinger (Austria), B. Schumacher (Ohio), A. Steane (Oxford), J. Preskill (Pasadena), U. Vazirani (Berkeley), D. Deutsch (Oxford), R.S. Williams (California), D. DiVincenzo (New York), W.H. Zurek (New Mexico), P.L. Knight (London), P. Zoller (Austria), R. Hughes (New Mexico), M. Lockwood (Oxford), S. Hameroff (Arizona), J. Tuszynski (Edmonton).

REGISTRATION FREE

Further details and poster information can be obtained from:

Mr. Nicholas Boross-Toby, The Royal Society, 6 Carlton House Terrace,
London SW1Y 5AG. Tel: 0171-839 5561, ext. 2574; Dept. Fax: 0171-451 2693.

WWW Address: <http://www.royalsoc.ac.uk>

The Royal Society is a charity promoting science

LONDON MATHEMATICAL SOCIETY

TWO-DAY MEETING

Friday 17th & Saturday 18th October 1997

Mathematical Aspects of Numerical Analysis of Partial Differential Equations

Friday

- 14.15 C.M. Elliott (Sussex) *Numerical Analysis of a Mean Field Model of Superconducting Vortices*
15.30 T. Hou (Cal. Tech.) *Stabilizing Effect of Surface Tension and Formation of Pinching Singularities in Fluid Free Surfaces*
16.30 Tea
17.00 P.L. Lions (Paris) *Partial Differential Equations, Monte-Carlo Simulations and Applications to Finance*
19.00 Dinner

Saturday

- 9.15 E. Suli (Oxford) *A Posteriori Error Analysis of Adaptive Finite Element Methods for Hyperbolic Problems*
10.15 Coffee
10.45 B. Cockburn (Minnesota) *A Posteriori Error Estimates for Nonlinear Parabolic Equations*
12.00 R.C. Rannacher (Heidelberg) *A Paradigm for Error Control and Mesh-Size Selection in Solving Partial Differential Equations with Applications*

*The meeting will be held at the Scientific Societies Lecture Theatre,
New Burlington Place, London W1*

All interested are very welcome

A dinner will be held at La Locanda Restaurant, Heddon Street, London W1 on the Friday evening at 6.30 pm for 7.00 pm. The cost will be £20.00 per person, inclusive of wine. Those wishing to attend should inform Miss Susan M. Oakes, London Mathematical Society, Burlington House, Piccadilly, London W1V 0NL, enclosing a cheque payable to 'The London Mathematical Society' to arrive no later than **Tuesday 14th October**.

There are limited funds available to help research students attend the meeting. Request for support and any other enquiries may be addressed to Dr J.W. Barrett, Department of Mathematics, Imperial College, London SW7 2BZ (e-mail: j.barrett@ic.ac.uk).



University
of Durham

Chair in Pure Mathematics

A Chair in Pure Mathematics in the Department of Mathematical Sciences is available from 1 October 1998 or such date as may be arranged.

The successful candidate will have an outstanding research record in any branch of Pure Mathematics. The fields of present members of the department include Number Theory, Algebraic and Differential Geometry, and Topology. In the last Research Assessment both Pure and Applied Mathematics in Durham were graded 5.

The salary will be by negotiation within the professorial range.

For an informal discussion of the post, please contact Professor E Corrigan (Chairman), tel: +44 (0)191 374 2372, fax: +44 (0)191 374 7388 or e-mail: Edward.Corrigan@durham.ac.uk or Professor A J Scholl (Professor of Pure Mathematics), tel: +44 (0)191 374 2355 or e-mail: A.J.Scholl@durham.ac.uk

Information about the department may also be found on the World Wide Web: <http://fourier.dur.ac.uk:8000/home.html>

Further details and an application form may be obtained from the Director of Personnel, University of Durham, Old Shire Hall, Durham DH1 3HP, to whom applications (5 copies) should be submitted, including the names of three referees. (Candidates outside the British Isles may submit one copy only).
Tel: +44 (0)191 374 3140, fax: +44 (0)191 374 7253 or
e-mail: snr.recruit@durham.ac.uk

Closing date: Friday 31 October 1997. Please quote reference C046.

VISIT OF PROFESSOR I.V. PROTASOV

Professor I.V. Protasov of Kiev University will be visiting the Universities of Hull and Sheffield during the month of October, supported by an LMS fSU grant. His field is topological algebra, in particular topologies on groups and compactifications of groups. Further details can be obtained from Dona Strauss (d.strauss@maths.hull.ac.uk) or John Pym (j.pym@sheffield.ac.uk).

VISIT OF PROFESSOR I.A. MOLOTKOV

Professor I.A. Molotkov, of the Institute of Terrestrial Magnetism Ionosphere and Radio Wave Propagation, Russian Academy of Sciences, has been awarded a London Mathematical Society fSU grant and an Edinburgh Mathematical Society Centenary Fund grant to visit the United Kingdom from 2 to 22 November 1997. He is an authority on travelling waves in

heterogeneous media. He will be based at Heriot-Watt University and will visit St Andrews, Nottingham and Bath. For further information please contact Professor A.A. Lacey, Department of Mathematics, Heriot-Watt University, Riccarton, Edinburgh, EH14 4AS (e-mail: a.a.lacey@ma.hw.ac.uk).

MATHEMATICAL SCIENCES ANNUAL 1998

This is the eighth issue of an annual publication containing the addresses, 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 to all the Departments 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 (enclose a stamped addressed envelope of the right size).



**THE
UNIVERSITY
OF HULL**

LECTURESHIP IN PURE MATHEMATICS

A Lectureship (Grade A) in Pure Mathematics is available from 1 February 1998. The successful candidate will have a strong commitment to teaching and research and will be expected to make a sustained contribution to the research output of the Department. In the 1996 RAE Pure Mathematics was rated 4.

Applications are invited from candidates with research interests in probability and stochastic analysis. Candidates should have some expertise in mathematical finance theory, and a background in statistics is also desirable.

Informal enquiries may be made to Professor Nigel Cutland, Head of Department of Mathematics (Tel: 01482-466214; e-mail n.j.cutland@maths.hull.ac.uk)

For further information and details of how to apply contact the above or the Personnel Office (Tel: 01482-466580 - recruitment answerphone; fax 01482-466570) or visit <http://www.hull.ac.uk/maths>

Closing date for applications - 17 October 1997

"WHY STUDY MATHEMATICS?" - THE VIDEO

The country needs good students to study mathematics. Mathematics departments depend on there being a steady flow of good students wanting to study mathematics. We may think that the product is so good it should "sell itself", but the reality is different. All of us depend for our bread and butter on making sure that the value, the potential and the flexibility of a mathematics degree are clearly understood by adolescents, their parents and their teachers.

Unfortunately, until recently there has been a dearth of "sales material" - whether leaflets, posters, booklets or videos.

Two years ago the LMS Education Committee produced a careers leaflet which has been widely circulated. The glossy coloured version (50p a copy) is now in short supply, but there are still copies of the black and white version (5p a copy), and every department should have a stock and use them.

Now the BBC/OU have produced a high quality 30 minute video entitled "Multiple choices". Every department should have several copies of its own, and should encourage local schools and careers centres to obtain their own copies and to show them regularly to Year 11 and 12 students and to their parents. (It is the sort of video that should be running on parents' evenings and open days in every school mathematics department, to counteract the widely held views that studying mathematics is a "dead end", or is only suitable for the brightest students.)

The video seeks to persuade potential students (of all ages) to study mathematics. It consists of a sequence of short "case studies", looking at a variety of young(ish) individuals who have gone into different kinds of employment or subsequent study on the basis of a mathematics degree. The producer (Pip Surgey) has sought to convey not only factual information (about the range of openings to mathematics graduates, and about the

work of the individuals featured) but also to try to capture the sort of thing that originally led each individual to get interested in mathematics in the first place.

Academic mathematicians can be very picky. No doubt there will be details that some will quibble with ("Too many talking heads"; "Too many Scots"; "Too many women"; etc.). However, the video was not made for us. Whatever quibbles we may have, it is time we woke up and went on the offensive. We may be privileged to teach a wonderful discipline. But we also need to make sure that adolescents, their teachers and their parents understand that a maths degree is perhaps the most flexible of all degrees and is in great demand. The video is of high quality, and it is important that we all make sure it is widely used.

Copies are available for £5 (cheque with order, payable to "UK Mathematics Foundation") from A. Gardiner, School of Mathematics, University of Birmingham, Birmingham B15 2TT.

ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES

New Programmes Announced

The following new programmes have been confirmed:

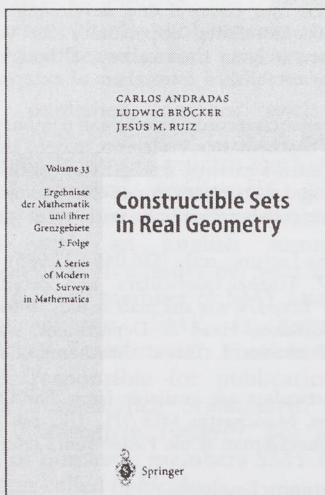
July to December 1999: Structure Formation in the Universe; Organisers: V.A. Rubakov (INR, Moscow), P.J. Steinhardt (Pennsylvania), N.G. Turok (Cambridge).

September to December 1999: Mathematical Developments in Solid Mechanics and Materials Science; Organisers: K. Bhattacharya (Pasadena), P. Suquet (Marseille), J.R. Willis (DAMTP).

January to June 2000: Ergodic Theory, Geometric Rigidity and Number Theory; Organisers: A. Katok (Penn State), G. Margulis (Yale), M. Pollicott (Manchester).

For more information about the Newton Institute and its programmes, please see the Website at <http://www.newton.cam.ac.uk>.

Ergebnisse der Mathematik und ihrer Grenzgebiete 3. Folge / A Series of Modern Surveys in Mathematics



**Volume 33: C. Andradas,
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UNIVERSITY OF MANCHESTER DEPARTMENT OF MATHEMATICS

The Department of Mathematics is seeking to appoint active researchers to Lectureship positions in Applied Mathematics. These new, permanent posts follow the recent appointment of Professor I. David Abrahams to the Beyer Chair within the Department, and signal Manchester's intention to reassert itself at the forefront of research into classical and developing areas of Applied Mathematics. The Lectureships offer an outstanding opportunity for young mathematicians to develop strong research programmes early in their careers, although the Department will consider more senior appointments for established researchers of exceptional ability.

Applications are invited from candidates with strong research records, or who can demonstrate considerable research potential, in any branch of Applied Mathematics. Preference may be shown to applicants who complement or reinforce the Department's existing strengths in continuum mechanics (solid and fluid mechanics, waves), industrial and mathematical modelling, numerical analysis, and mathematical physics, or who will enhance collaborative links with other groups within or outside the University.

Salary is expected to be at an appropriate point on the Lecturer scale (£16,045-£27,985). The closing date for applications is **17 November 1997**. Further particulars, and details of the Department, can be found at the web address <http://www.ma.man.ac.uk/>. Informal enquiries may be directed to either Professor C.T.H. Baker, Head of Department, e-mail: head@ma.man.ac.uk, tel: +44 (0)161-275-5800, or Professor I. David Abrahams, e-mail: i.d.abrahams@keele.ac.uk, tel: +44 (0)1782-583269.

An application form and a hard copy of further particulars are available from The Office of the Director of Personnel, University of Manchester, Manchester M13 9PL, UK, tel: +44 (0)161-275-2028, fax: +44 (0)161-275-2221, e-mail: personnel@man.ac.uk. Please quote reference number 532/97.

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THE FINNISH MATHEMATICAL SOCIETY

The Finnish Mathematical Society is one of the oldest mathematical societies. It was founded 1868, three years after the London Mathematical Society and four years before Société Mathématique de France, fifteen years before the Edinburgh Mathematical Society.

The official name of the Society is Suomen Matemaattinen Yhdistys (SMY). SMY has set as its purpose to encourage and maintain interest to mathematical thinking and to promote mathematical research in Finland. For that purpose SMY prepares proposals, organizes seminars, arranges meetings, awards grants and represents its membership.

In the first years the activities of SMY for raising interest to mathematical thinking were mainly directed to the university students. At that time it was even in the statutes that students were entitled to ask and receive guidance on points on any mathematical lecture that

had remained obscure to them. Later on the emphasis has been enlarged to include younger people in order to encourage them to enter mathematical studies at a university. For that purpose SMY publishes at the moment a bulletin *Silmu* and promotes participation to mathematical competitions like International Mathematical Olympiad and Nordic Mathematical Contest.

For the promotion of mathematical research there are mathematical presentations at the meetings of SMY. In the beginning all the speakers were Finnish. The first foreign speaker was M. Rietz in 1926. After that the number of foreign speakers gradually increased. Finally it became one of the main activities of SMY to invite eminent mathematicians to visit Finland and give talks at the meetings of SMY. There were 31 such visits last year. The so formed international ties have had a very positive effect on the development

of mathematical research in Finland.

Another regular scientific activity of SMY is a conference called *Matemaatikokopäivät* which is organized at the beginning of every second year. It aims to give an overview of the current mathematical research in Finland. SMY organizes also different Nordic conferences together with other Scandinavian mathematical societies.

SMY publishes together with the Finnish Physical Society (SFS) a journal *Arkhimedes*. It aims to publish mathematical and physical articles of general interest. They are usually written in Finnish with an English summary. *Arkhimedes* has five issues per year and it is sent to every member of SMY and SFS free of charge. SMY is together with other Scandinavian mathematical societies responsible for publication of journals *Mathematica Scandinavica* and *Nordisk Matematisk Tidskrift*. For information of domestic members SMY has a newsletter called *Eukleides*.

The Society has currently about 350 members. The supreme authority of the Society is the General Meeting which is held once a year. The general charge of all matters lies with the Board which consists of the President, Vice-President, Secretary, Treasurer and one additional member. All these are elected for one year at the General Meeting and they may be re-elected.

Individuals as well as corporate bodies can apply for membership. Applications for Membership and Reciprocity Membership should be sent to the Board of the Society who has the power to accept members. Members pay an annual fee which is at the moment 160 FIM. Reciprocity members pay one half of this.

The address of the Society is: Department of Mathematics, PO Box 4, University of Helsinki, FIN-00014, Finland.

Aatos Lahtinen
Treasurer

The Society has recently made a Reciprocity Agreement with the Finnish Mathematical Society.

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25% Off LMS Books For LMS Members

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BOOK REVIEWS

Fermat's Last Theorem by Simon Singh. Fourth Estate Ltd, London, 1997, 362 pp, £12.99.

Andrew Wiles's proof of a well-known marginal annotation, one of the great mathematical achievements of the century, generated enormous and unprecedented media interest in pure mathematics. An excellent example of this was the BBC2 documentary *Fermat's Last Theorem*, and its director has now written what promises and deserves to be a best-selling popular account of this problem and its solution.

Singh cleverly alternates between two fascinating stories. One is the history of FLT, starting with Pythagoras's Theorem. As well as mathematics, this tale includes murder (Pythagoras and Archimedes), suicide (Taniyama and Turing), imprisonment and death by duelling (Galois), disguise (Sophie Germain) and secrecy (the Pythagoreans and the Bletchley code-breakers). Singh paints a broad landscape here, often using topics not directly related to FLT to illustrate the problems, methods, achievements and limitations of mathematics; some of the episodes recounted are likely to be known to many readers, whereas others, such as the accounts of Germain and Taniyama, may be less familiar.

The other story is that of Wiles's relationship with FLT: his discovery as a 10-year-old boy of its statement in a library book; his development into a leading expert on elliptic curves; the realisation that such structures might be used to prove FLT; his extraordinarily secretive attack on the Taniyama-Shimura Conjecture; the exciting demonstration of the proof at the Isaac Newton Institute in 1993; the painful year spent repairing the infamous gap, and finally the publication, with Richard Taylor, of the complete proof in 1995. Singh tells a very human story, graphically conveying the ups and downs of Wiles's intellectual and emotional involvement in the problem. Comments from Wiles himself, and other mathe-

maticians such as Coates, Conway, Katz, Ribet and Shimura, are effectively used, as are contemporary e-mails which illustrate the mathematical community's intense interest.

One attraction of FLT is the simplicity of its statement, allowing Singh to write much of this book in terms comprehensible to any good GCSE student; important principles such as rigorous proof, induction and symmetry are carefully explained and illustrated, and more advanced mathematical ideas are dealt with in appendices. The real importance of FLT, however, lies in the richness of the theories it has generated, and without attempting to go into details, Singh gives due prominence to Wiles's work on the Taniyama-Shimura Conjecture and its place within the Langlands programme. Those wanting more on this should read the American Mathematical Monthly survey articles by Mazur (1991), Cox and Gouvêa (1994), or van der Poorten's recent book.

With a PhD in physics, Singh has a good feeling for mathematics and its history, and most of what he writes is accurate. Nevertheless, there are a few slips: for instance, it is not quite true that every prime has the form $4n+1$ or $4n-1$, nor that every pair of primes differ by at least 2. Although much relevant ground is covered, some opportunities are missed: in discussing Euler's proof of the exponent 3 case it would be instructive to mention his small but significant error, to illustrate how FLT can set traps for even the greatest mathematicians. Prime numbers, perfect numbers and Mersenne all appear, but there is no discussion of Mersenne primes and their connection with perfect numbers; similarly, Singh neglects the remarkable evidence of Babylonian knowledge of Pythagorean triples, and few mathematicians would agree with his claim that the sphere-packing problem is now the greatest challenge facing the subject. However, these are minor quibbles, and all in all this is a splendid book which can be read with

pleasure by lovers of mathematics at many levels.

Mary and Gareth Jones
University of Southampton

Mathematical Reflections: In a Room with Many Mirrors by Peter Hilton, Derek Holton and Jean Pedersen, Springer-Verlag, New York, 1996, DM49.00

When I was a teenager, I remember with great pleasure the radio programmes that Peter Hilton used to present on mathematical topics - interesting, challenging, and models of clarity. These attributes apply equally to this book he has compiled with Derek Holton and Jean Pedersen some thirty-five years later.

Mathematical Reflections is a delightful romp through eight areas from the highways and by-ways of mathematics, with brief excursions to an impressive list of topics. Starting with the question 'What have Helianthus annulus and Helix pomatia got in common?' the authors proceed to the drawing of spirals and cobweb diagrams, leading to a discussion of sunflower patterns. In Chapter 2 the authors proceed via modular arithmetic and number puzzles, via Fermat's little theorem and Wilson's theorem, to methods of encryption and security. There is some fun in Chapter 3 with

Fibonacci and Lucas numbers and their divisibility properties, followed in the next chapter by an extensive discussion of paper folding and star polygons, leading to some solid geometry. Chapter 5 is an attractive treatment of tilings, Escher-type pictures and wallpaper patterns, as applied to the design of quilts, complete with the construction of a 'Möbius muff'. In Chapter 6 there are introductions to Pascal's triangle, Eulerian numbers and a range of binomial identities, and in Chapter 7 the authors discuss Ramsey theory, cardinal arithmetic and the Schröder-Bernstein theorem. The last topic starts with the Cantor set and proceeds via snowflake patterns to fractals. The book concludes with a chapter discussing some general principles. While one may quibble with the choice of topics included in the eight chapters - for example, I should have welcomed a chapter or two related to topics in graph theory - there is no doubting the incredible range of areas receiving a lively and original treatment in this volume. This is a book to dip into and enjoy. The mathematical exposition ranges considerably in level from elementary to first-year undergraduate, but many topics can be enjoyed at different levels.

Robin Wilson
The Open University

EUROPEAN MATHEMATICAL SOCIETY

Origins and Growth The European Mathematical Society (EMS) was founded in 1990 in Poland at a meeting attended by delegates from most of the mathematical societies of the European countries. The Society was constitutionally established under Finnish law with its seat in Helsinki. The membership, both corporate and individual, has grown so that today there are over 40 societies as corporate members and some 1700-1800 individual members. Some of the activities of the EMS are outlined below.

European Congresses of Mathematics The first such Congress was held in Paris (1992) and the second in Budapest (1996). Each Congress has had a care-

fully designed scientific programme and an opportunity for 'Round Table' discussions. Each Congress has been accompanied by satellite conferences on specialised topics. Partial funding for these Congresses was obtained from the European Union (EU) and UNESCO. The next Congress, with a similar format, will be held in Barcelona (2000).

Diderot Mathematical Forum Under this title the EMS arranges for conferences to be conducted simultaneously on more than one site via a dedicated telecommunication link-up. The purpose of these conferences is to address mathematics in its fundamental aspects, in its applications and in its links to society.

The first conference was in 1996 involving London, Moscow and Zurich on the theme of 'Mathematics and Finance'. A second is planned for December 1997 on the theme of 'Mathematics and Environment'.

Summer Schools and Conferences The EMS has sponsored several summer schools. It is intended to run a series of summer schools, of which two should take place each year, one on fundamental mathematics and the other on applications. The aim is that the series should be particularly relevant for young doctoral and post-doctoral students.

Newsletters The EMS already produces a Newsletter (in English), which is distributed free to members. The presentation of the Newsletter will undergo major changes in 1997. Plans are also under consideration for an additional (multilingual) Newsletter, somewhat different in kind from the present Newsletter, which would draw upon the contents of existing national newsletters.

Electronic Communication The EMS has taken an active part in developing electronic communication and internet facilities. The European Mathematical Information Service (EMIS) has been set up with various servers and mirrors in many institutions in and outside of Europe. The scope for electronic publishing is being closely monitored.

Journal The EMS is about to launch, under a distinguished Editorial Board, a new research Journal to be called the Journal of the European Mathematical Society (JEMS). It is intended that JEMS should be a prestigious publication. In keeping with the forward-thinking policy of the EMS an electronic version of JEMS will subsequently appear.

Towards a European Database A European Database for mathematics is being developed. The EMS is intimately involved in the deliberations to ensure that the mathematical community derives the maximum benefit from such a database. The ultimate intention is to transform the Zentralblatt für Mathematik into a truly European venture, having input from various European

countries and from colleagues of many different origins. The EMS has been able to negotiate favourable terms with the Zentralblatt by which reviewers of the Zentralblatt may more easily pay membership dues of the EMS.

Stefan Banach Centre (Warsaw) The EMS takes an active interest in this Centre to whose governing body it nominates three members.

Sub-Committees There are standing sub-committees, among others, on Eastern Europe, Developing Countries, Education, and Women in Mathematics. Schemes have been promoted to provide financial assistance to deserving mathematicians from certain less affluent areas; such schemes are inevitably limited by the level of resources available to the EMS.

European Union Fifth Framework Programme The EU is known to be biased in favour of industrial applications and, in consequence, the importance of mathematics in the modern world has to be emphasised in Brussels. The EMS works at creating very good high level contacts there and has been able to exert influence to the benefit of mathematics. It is clearly vital that the needs of mathematicians should not be neglected by the conditions of the Fifth Framework Programme. For that purpose, the EMS has published a declaration of its intention to participate in the general discussion leading to the formulation of the Fifth Framework Programme.

Future Many of the activities above are still in developmental stages. The President and Executive Committee of the EMS are always willing to receive suggestions for other developments. For its part, the Executive Committee would very much welcome an increase in the membership of the EMS, the cost of which by Western European standards is relatively inexpensive.

For further information, contact: EMS Secretariat, Department of Mathematics, PO Box 4, University of Helsinki, FIN-00014, Finland; e-mail: tuulikki.makelainen@helsinki.fi; fax: +358-9-1912 3213.

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INTERNATIONAL CONGRESS OF MATHEMATICIANS FIRST ANNOUNCEMENT

The Organizing Committee is pleased to announce that the next International Congress of Mathematicians will take place in Berlin, Germany, from Tuesday, August 18, through Thursday August 27, 1998. It will be held under the auspices of the International Mathematical Union (IMU) and sponsored by many other institutions.

Mathematical Programme

Responsibility for the scientific programme lies with the Programme Committee appointed by IMU. There will be about twenty one-hour Plenary Lectures covering recent developments in the major areas of mathematics and about 170 forty-five-minute Invited Lectures in nineteen sections. The sections are as follows:

- Logic
- Algebra
- Number Theory and Arithmetic Algebraic Geometry
- Algebraic Geometry
- Differential Geometry and Global Analysis
- Topology
- Lie Groups and Lie Algebras
- Analysis
- Ordinary Differential Equations and Dynamical Systems
- Partial Differential Equations
- Mathematical Physics
- Probability and Statistics
- Combinatorics
- Mathematical Aspects of Computer Science
- Numerical Analysis and Scientific Computing
- Applications
- Control Theory and Optimization
- Teaching and Popularization of Mathematics
- History of Mathematics

Every registered participant (traditionally called Ordinary Member) of the Congress will have the opportunity to give a short presentation, either during a poster session or in the form of a fifteen-minute lecture. A formal call for such

presentations will be issued in the Second Announcement. Informal mathematical seminars may be organized at the initiative of groups of participants. English, French, German, and Russian are the official languages of the Congress.

All Plenary and Invited Lectures will be published in the Proceedings of ICM'98; after the Congress, a complimentary copy of these Proceedings will be sent to each Ordinary Member. Abstracts of all lectures and of all short presentations will be distributed free of charge to Ordinary Members at Congress check-in.

The Fields Medals and the Nevanlinna Prize will be awarded during the Opening Ceremony on the first day of the Congress. This will take place in the International Congress Centre Berlin (ICC); all other scientific events will be held at Technische Universität Berlin. No scientific activities are scheduled for Sunday, August 23.

In an effort to reach out to a wider audience, the ICM'98 organizers have initiated several cultural activities related to mathematics that are attractive to the general public. In particular, there will be a VideoMath Festival, software demonstrations, talks about mathematics and its relations to other subjects, several exhibitions (*'Mathematics in the Arts'*, etc.), and other events (Mathematics and Music, etc.). Special consideration will be given to the impact of the Nazi regime on mathematics in Berlin and Germany.

Social Events

On August 18, a buffet-banquet for all registered participants will be held at noon directly after the Opening Ceremony in the ICC. During the Congress, a number of guided tours of Berlin, visits to museums, and walking tours will be offered. On Sunday, August 23, it will be possible to choose from several excursions. For that evening, tickets have been reserved for the opera *The Magic Flute* at the Deutsche Oper. Registered participants may purchase tickets in advance for these events as well as for

many day trips and pre- or post-congress tours to places of interest in the vicinity of Berlin.

Organization

Up-to-date information about all aspects of ICM'98 is available on the following website: <http://elib.zib.de/ICM98>. This includes information about registration, abstract submission, etc. Correspondence should be directed to: icm98@zib.de. It will be forwarded to an appropriate member of the Organizing Committee. If electronic communication is not available you may also write to: ICM'98, c/o Prof. Dr. J. Winkler, TU Berlin, MA 8-2, Strasse des 17. Juni 135, D-10623 Berlin, Germany (fax +49/30/314-21604).

Registration and Accommodation

DER-CONGRESS, a professional congress and tour organizer, has been appointed by the Organizing Committee to handle all non-scientific matters for individual participants: registration to the Congress and the social events, hotel reservation, tourist program, collection of registration fees, etc. The formal registration procedure for the Congress will be described in the Second Announcement (see below).

Participants will be housed in a variety of hotels in Berlin; the necessary reservations have already been made by DER-CONGRESS. In addition, DER-CONGRESS will make student residences available and will provide a certain amount of private accommodation at a cheap rate for participants willing to accept less comfort. Detailed information

on locations and rates will be provided in the Second Announcement.

Forms for registration and accommodation requests will be made available on the ICM'98 server in January 1998.

Second Announcement

The Second Announcement of ICM'98 will describe the activities of the Congress in more detail and give instructions on how to complete the registration process and obtain accommodation. It will provide more, although not complete, information on the scientific programme, contain a call for contributed short presentations, and give instructions regarding the submission of abstracts.

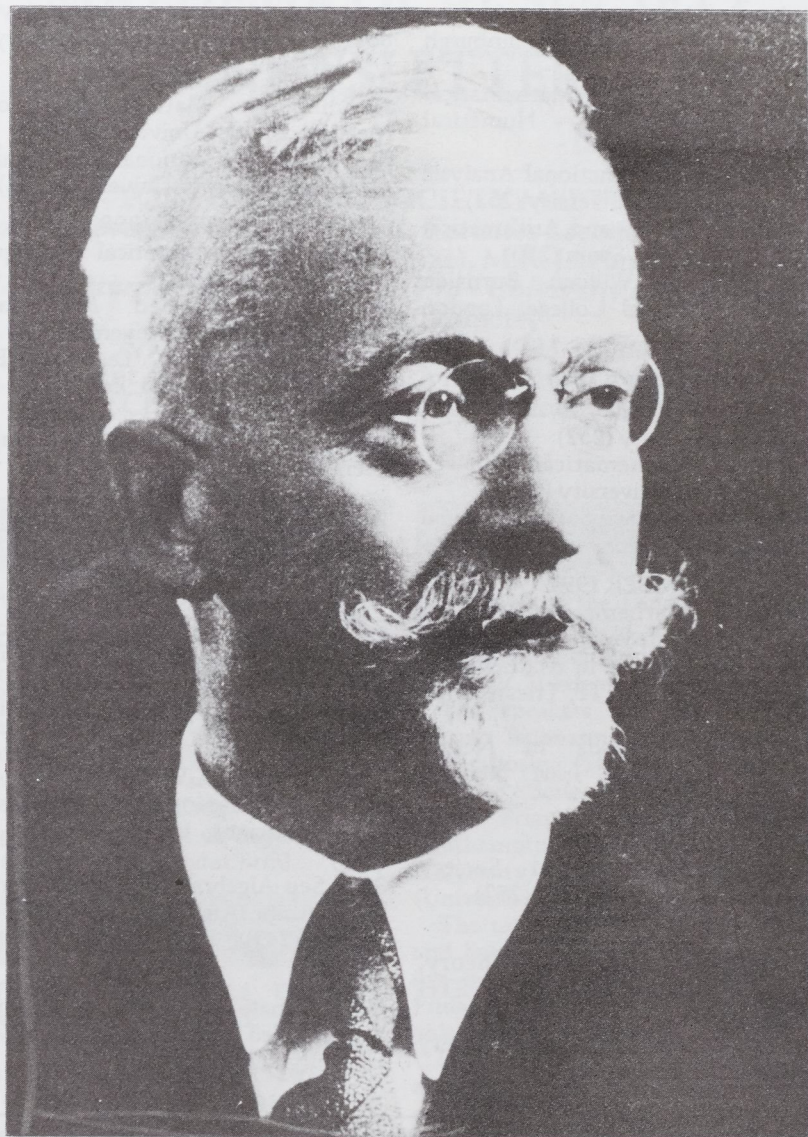
The Second Announcement will also include advice on how to proceed upon arrival at airports and train stations, and it will be accompanied by a brochure describing the day trips and tours organized by DER-CONGRESS.

Several conferences of a more specialized nature are scheduled immediately before or after ICM'98. The Second Announcement will also contain a list of such 'satellite conferences'.

To receive the Second Announcement, fill out the form on the ICM'98 server (<http://elib.zib.de/ICM98>). Alternatively, send an empty e-mail to icm98@zib.de with **Second Announcement** in the SUBJECT line to receive an e-mail form. If this is not possible for you, please write to the ICM'98 Secretary, Prof. Winkler (see address above). The Second Announcement will be mailed from Berlin at the beginning of 1998.

JOURNAL BACKLOG 1997

	No. of Issues	No. of Pages	Backlog	Estimate (months)
Math. Proc. Camb.	6	1200	570	20 - 26
Edin. Math. Society	3	578	250	16 - 24
Glasg. Math. Journ.	3	384	110	17 - 19
LMS Bulletin	6	540	25	10 - 16
LMS Journal	6	1248	800	15 - 24
LMS Proceedings	6	1440	420	11 - 19
Mathematika	2	440	150	15 - 27
Oxford Q J M	4	512	370	18
R S Edin. Proc. A.	6	1344	500	12 - 14



E. CARTAN
Honorary Member 1939

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.

OCTOBER 1997

17 Edinburgh Mathematical Society Annual General Meeting, Edinburgh University (252)

17-18 Two-day London Mathematical Society Meeting, London - Numerical Analysis

24-25 North British Functional Analysis Seminar, Manchester University (252)

24-29 Number Theory and Arithmetical Geometry Conference, Spain (250)

25 Celebration of William Burnside Meeting, Royal Naval College, London (250)

NOVEMBER 1997

5 Lancelot Hogben Symposium, Birmingham University (252)

14 Edinburgh Mathematical Society Meeting, Glasgow University (252)

21 London Mathematical Society, Annual General Meeting, London

DECEMBER 1997

12 Edinburgh Mathematical Society Meeting, Heriot-Watt University (252)

13-17 European Women in Mathematics 8th General Meeting, ICTP, Trieste, Italy (244)

15-19 Bayesian Methods in Neural Computing Conference, Isaac Newton Institute, Cambridge (252)

JANUARY 1998

16 Edinburgh Mathematical Society Meeting, Edinburgh University (252)

FEBRUARY 1998

9-13 Hyperbolic Problems Theory, Numerics, Application Conference, ETH Zurich, Switzerland (246)

13 Edinburgh Mathematical Society Meeting, Edinburgh University (252)

20-21 Two-day London Mathematical Society Meeting, University of Southampton - Hyperbolic Geometry

MARCH 1998

13 Edinburgh Mathematical Society Meeting, Dundee University (252)

31-3 Apr Computational Fluid Dynamics Conference, Oxford University (252)

APRIL 1998

6-9 British Mathematical Colloquium, Manchester University

6-9 British Applied Mathematics Colloquium, Brunel University

20-24 LMS Invited Lectures, Exeter University, Professor D. Zagier

20-24 Probability: Theory and Applications Workshop, Nottingham Trent University (252)

MAY 1998

8 Edinburgh Mathematical Society Meeting, Aberdeen University (252)

JUNE 1998

5 Edinburgh Mathematical Society Meeting, St Andrews University (252)

22-27 European Consortium for Mathematics in Industry (ECMI 98), Göteborg, Sweden (252)

AUGUST 1998

18-28 International Congress of Mathematicians, Berlin, Germany (238) (242)

30-5 Sep Algebraic Number Theory and Diophantine Analysis Conference, Graz, Austria (249)

JULY 1999

5-9 International Congress of Industrial and Applied Mathematics (ICIAM 99), Edinburgh (252)

The Newsletter is published monthly except in August. Items and advertisements for inclusion in the Newsletter should be sent to the Editor, Susan Oakes, by e-mail, fax or post to the LMS office (addresses below), to arrive before the first day of the month prior to publication.

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