

# THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 279

February 2000

## FORTHCOMING SOCIETY MEETINGS

*Saturday 4 March 2000 - Cambridge*

Inaugural Mary Cartwright Lecture

*Friday 31 March-Saturday 1 April 2000 - Oxford*

Modelling Dynamics in the Life Sciences

*Friday 19 May-Saturday 20 May 2000 - Oxford*

Hilbert's Problems: Past and Future

Joint meeting with the

British Society for the History of Mathematics

*Friday 23 June 2000 - London*

M. Buhmann, M.J.D. Powell

## LADY JEFFREYS

Bertha Jeffreys, who was elected a member of the London Mathematical Society on 14 December 1932, died on 18 December 1999, aged 96.

## JÜRGEN K. MOSER

Professor Jürgen Kurt Moser, who was elected an Honorary Member of the London Mathematical Society on 10 May 1996, died on 17 December 1999, aged 71. He was the Society's Hardy Lecturer in 1977.

## VISIT OF PROFESSOR D.L. COLTON

Professor D.L. Colton (University of Delaware) will be visiting Professor B.D. Sleeman at the School of Mathematics, University of Leeds from the 11 February to 11 March 2000. His interests are in Acoustic and Electromagnetic Inverse Scattering Problems and Application to Medicine. This visit is supported by the LMS by a Scheme 2 grant. Further details about the visit may be obtained from Professor B.D. Sleeman (e-mail: bds@amsta.leeds.ac.uk).

## CONGRATULATIONS

Congratulations to Alun Morris, who received an OBE, and to Andrew Wiles, FRS, who received a Knighthood, in the New Years Honours List.

## LMS HANDBOOK AND LIST OF MEMBERS 2000

The Society is preparing a new Handbook and List of Members which will appear in May 2000. A letter showing the information for your entry in the List of Members has been sent to every member. If you have not received the letter please contact the LMS office (tel: 020 7637 3868, fax: 020 7323 3655, e-mail: lms@lms.ac.uk).

## VISIT OF PROFESSOR K. RUANE

Professor Kim Ruane (ETH Zürich and Tufts University) will be visiting the UK in late February and early March on a Scheme 2 grant from the London Mathematical Society. During her visit, she will be giving talks at Southampton University, Oxford University, and Queen Mary and Westfield College. For more information, and for a schedule of the talks, please contact Dr J. Anderson (e-mail: jwa@maths.soton.ac.uk).



## ANNUAL GENERAL MEETING

A meeting was held on Friday 19 November 1999 at University College London, Professor M.J. Taylor, FRS, in the Chair. There were present about 80 members and visitors. Dr A.R. Pears and Dr W. Stephenson were appointed as Scrutineers for the election of Council Members and collected ballot papers. The Treasurer, Professor A.O. Morris, presented his annual report, which was published in the January *Newsletter*. Messrs Fraser Russell were appointed as auditors.

Twenty-nine people were elected to Ordinary Membership: R.P. Brent, W.S. Chan, S.N. Chandler-Wilde, M. Dunajski, J.R. Howse, W.R. Johnstone, A.C. King, A.G. Kovalev, J.A. Leach, M. Mazzocco, C.J.H. McDiarmid, P.W. McOwan, J.A. Moody, A.O. Moscardini, A.N. Pressley, S.F. Ross, G.H. Rousseau, N. Ruskuc, A. Sackfield, A.M. Salagean, R. Schack, D.J. Silvester, C.E. Tripp, M.R. Wallace, G.M.T. Watts, J.R. Willis, T. Wolf, T.J. Zastawniak, A.A. Zhigljavsky; four were elected to Associate Membership: D. Hadjiloucas, J.B. McHugh, S. Pejic, P.A. Reinfeld; and two were elected to Reciprocity Membership: B.L. Farina and R. Szoke (both of the American Mathematical Society). Three members signed the book and were admitted to the Society.

Professor J. Matoušek gave a lecture entitled 'Two geometric problems in the plane'. After tea, the Scrutineers announced the election results. The following Officers and Members of Council were elected: President: M.J. Taylor, FRS; Vice-Presidents: J.W. Bruce, J.T. Stuart, FRS; Treasurer: A.O. Morris; Council and General Secretary: J.S. Pym; Meetings and Membership Secretary: N.M.J. Woodhouse; Publications Secretary: E.C. Lance; Members-at-Large for two years: M.R. Bridson, K.A. Brown, FRSE, J.E. Cremona, C.A. Hobbs, M.A.H. MacCallum, D. Preiss; Member-at-Large for one year: D.G. Crighton, FRS. The members elected to the Nominating

Committee for 2000 were: A.R. Camina, T.A. Gillespie.

The President, on Council's behalf, presented certificates to 1999 Society Prizewinners: Polya Prize: S.K. Donaldson, FRS; Junior Whitehead Prizes: M.R. Bridson, G. Fiesecke, I.B. Leader. Professor W.T. Gowers, FRS, then gave a lecture on 'Some problems in additive number theory'. The meeting adjourned for the Annual Dinner, which was held at University College London.

## GLOBAL DYNAMICS IN SYMMETRIC SYSTEMS

The fourth of the LMS-sponsored south-eastern bifurcation theory workshops will be held in Cambridge (DAMTP) on Wednesday 8th March 2000. The theme of the workshop will be 'Global dynamics in symmetric systems'. If you are interested in coming, please let Alastair Rucklidge know, and if you would like to offer a talk, please include a tentative title. Speakers will include Professor M. Silber (Northwestern), Dr P. Ashwin (Surrey) and Dr A. Rucklidge (Cambridge). Funding to support the attendance of participants is very limited. Please let Alastair Rucklidge know if funding is playing a key role in deciding your attendance (DAMTP, Silver Street, Cambridge CB3 9EW, tel: (01223) 337 838, e-mail: A.M.Rucklidge@damtp.cam.ac.uk).

## GROUPS IN GALWAY 2000

A conference will take place from Friday 26 to Saturday 27 May at the Department of Mathematics, National University of Ireland, Galway. Among the invited speakers are Dr Charles Leedham-Green (London), Dr Eamonn O'Brien (Auckland) and Professor Des McHale (Cork). For further information please contact the organisers who are Dane Flannery (Dane.Flannery@nuigalway.ie) and James Ward (James.Ward@nuigalway.ie) at the Department of Mathematics, NUI, Galway, Ireland (tel: + 353 91 750442, fax: + 353 91 750542).



# LONDON MATHEMATICAL SOCIETY

## INAUGURAL MARY CARTWRIGHT LECTURE

Saturday 4 March 2000

**Professor W.K. HAYMAN** (Imperial College)  
will speak at 3.30 pm on  
**Recollections of Miss Cartwright**

**Professor C.M. SERIES** (Warwick) will give the  
inaugural Mary Cartwright Lecture at 5.00 pm on  
**Exploring the space of Quasifuchsian groups**

The meeting will be held at the Isaac Newton Institute,  
Clarkson Road, Cambridge

All interested are very welcome

Tea will be served at 4.30 pm

There will be a reception at 6.00 pm hosted by Girton College  
at Wolfson Court (next to the INI)

A dinner will be held at Girton College, Huntingdon Road, Cambridge at 7.30 pm. The cost will be £25.00 per person, inclusive of wine. Those wishing to attend should inform Miss Susan M. Oakes, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HP, enclosing a cheque payable to the London Mathematical Society to arrive no later than **Friday 25 February**.

Some funds are available to contribute in part to the expenses of members of the Society or research students who wish to attend the meeting. Requests for support should be addressed to the Meetings and Membership Secretary, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HP (requests should include an estimate of expenses and a very brief *curriculum vitae*; research students should include brief letters of endorsement from their supervisors).

## EPSRC

The EPSRC Mathematics Programme allocates approximately £250k per annum to support short visits from recognised academics from the UK and abroad, to visit various UK academic departments. These visits typically last 2-3 months and often the visiting academic will be available to travel to a number of other UK institutions, to give seminars on their research area. A list of EPSRC funded visits is available on the EPSRC web site (<http://www.epsrc.ac.uk/documents/programmes/structure/maths/who.htm>).

The maximum value of a Fast Stream EPSRC grant proposal has been increased to £60,000, with immediate effect. The scheme provides support for individuals who have been appointed to their first university post (paid under general university funding) within the previous 24 months, and are applying to the EPSRC as Principal Investigator for the first time. Further information is available from the web site (<http://www.epsrc.ac.uk/epsr>

[cweb/main/suppres/mechanisms/faststream.htm](http://cweb/main/suppres/mechanisms/faststream.htm)).

## VISIT OF PROFESSOR K.D. BIERSTEDT

Professor Klaus Bierstedt (University of Paderborn) will visit functional analysts in London, Reading and Oxford in late February. He will lecture at Goldsmiths' College on Wednesday 23 February at 4 pm, at the University of Reading on the afternoon of Friday 25 February and in the Mathematical Institute, Oxford on Tuesday 29 February at 5 pm. His talk in Oxford is entitled, "Operator representations for spaces of vector valued holomorphic functions". His talks in London and Reading will be on "Spaces of holomorphic functions with growth conditions". For further information e-mail J.D.M. Wright ([j.d.m.wright@reading.ac.uk](mailto:j.d.m.wright@reading.ac.uk) or C.J.K. Batty ([charles.batty@st-johns.oxford.ac.uk](mailto:charles.batty@st-johns.oxford.ac.uk) or [maa01chc.gold.ac.uk](mailto:maa01chc.gold.ac.uk)). The support of the LMS is gratefully acknowledged.



University  
of Durham

### DEPARTMENT OF MATHEMATICAL SCIENCES

The following appointments are tenable from 1 October 2000 or an earlier date by agreement.

Information about the department and its research groups may also be found on the department WWW pages at <http://fourier.dur.ac.uk:8000/>

### Senior Lectureship/Lectureship in Pure Mathematics (2 posts)

Lec A £17,238 - £22,578, Lec B £23,521 - £30,065, Senior Lec £31,564 - £35,670

You will be joining a group which was graded 5 in the last RAE, and should already have an excellent research record in an area of Pure Mathematics. You will also be expected to undertake teaching, at both undergraduate and graduate level, as directed by the Board of Studies in Mathematical Sciences.

Further particulars and application forms may be obtained from the Director of Personnel, University of Durham, Old Shire Hall, Durham DH1 3HP (tel: 0191 374 7258, fax: 0191 374 7253 or e-mail [Acad.Recruit@durham.ac.uk](mailto:Acad.Recruit@durham.ac.uk)).

Closing date: 3 February 2000. Please quote reference A067D.



# LONDON MATHEMATICAL SOCIETY

Two-day Meeting  
31 March - 1 April 2000, Oxford

## MODELLING SPATIOTEMPORAL DYNAMICS IN INTERACTING SYSTEMS

This meeting of the Society is open to all who are interested. In particular, it is hoped that it will bring together young mathematicians and established senior scientists in the field. Particular topics to be studied include developmental biology, cardiac physiology, neurobiology, ecology and epidemiology.

### FRIDAY

- |             |   |
|-------------|---|
| 2.00 - 2.05 | Opening   |
| 2.05 - 2.50 | Kees Weijer (Dundee) <i>Pattern formation in a biological excitable medium: The morphogenesis of Dictyostelium</i>  |
| 2.55 - 3.40 | Julian Lewis (ICRF, London) <i>Lateral inhibition, lateral induction, and vector fields: nearest-neighbour interactions and cellular patterning in the inner ear</i>      |
| 3.45 - 4.30 | Neil Ferguson (Oxford) <i>Modelling viral evolution: HIV, influenza &amp; dengue fever</i>  |
| 4.30 - 5.00 | Tea   |
| 5.00 - 5.45 | Hans Othmer (Minnesota) <i>The mathematical and computational challenges inherent in using micro-scale data to understand macro-scale behaviour in biological systems</i> |

### SATURDAY

- |               |   |
|---------------|---|
| 9.00 - 9.45   | Roger Traub (Birmingham) <i>High-frequency (&gt;100 Hz) neuronal oscillations generated by a novel type of interaction between neurons: axon-axon gap junctions</i> |
| 9.50 - 10.35  | Sasha Panfilov (Utrecht) <i>Spatiotemporal chaos in the heart</i>   |
| 10.35 - 11.00 | Coffee  |
| 11.00 - 11.45 | John Brindley (Leeds) <i>Climate, Cod and Calculus; Mathematics at Sea</i>  |
| 11.50 - 12.35 | David Rand (Warwick) <i>Explaining T cell recognition: how to obtain a timely, effective and safe response from low-affinity receptors</i>                          |

Accommodation has been booked at Lady Margaret Hall; reservations will be held until **Friday 3 March**. A dinner will be held at Lady Margaret Hall on the Friday evening. Those wishing to book accommodation or attend the dinner should contact Miss Susan M. Oakes, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HP (oakes@lms.ac.uk).

Some funds are available to contribute in part to the expenses of members of the Society or research students who wish to attend the meeting. Requests for support should be addressed to the Meetings and Membership Secretary, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HP (requests should include an estimate of expenses and a very brief *curriculum vitae*; research students should include brief letters of endorsement from their supervisors).



## ANNUAL LMS SUBSCRIPTION Reminder

The Society is appreciative of those members who have paid their 1999-2000 subscriptions. May we remind those who have not yet paid that subscriptions were due on 1 November 1999. The Society reserves the right to discontinue the supply of periodicals and the *Newsletter* to members whose subscription remains unpaid by 31 January 2000. The methods of payment are either by a sterling cheque drawn on a UK bank, a US\$ cheque drawn on a US bank, direct debit, credit card, Eurocheque (quoting your card number on the reverse), or giro. If you have misplaced your renewal of subscription form, contact the LMS office (tel: 020 7637 3868, fax: 020 7323 3655, e-mail: [lms@lms.ac.uk](mailto:lms@lms.ac.uk)).

## MATHEMATICAL METHODS OF REGULAR DYNAMICS

A Workshop on Mathematical Methods of Regular Dynamics is being held from 12 - 15 April 2000, at the University of Leeds. This is a satellite meeting of the British Mathematical Colloquium. It is supported by a conference grant from the London Mathematical Society.

The Workshop is dedicated to the 150th anniversary of Sophie Kowalevski, the great mathematician who laid a basis for and developed many methods used in the theory of partial differential equations (Cauchy-Kowalevski theorem) and in the modern theory of integrable systems (for instance, Kowalevski-Painlevé property, integration in quadratures and many aspects of algebraic geometry). The object of this Workshop is to bring together researchers working in algebraic geometry, integrable systems and algebraic origins of integrability, to discuss most recent results in these areas and to stimulate cooperation.

The main subject of the Workshop will be classical and quantum integrability. The confirmed talks already include such topics as spinning tops, Calogero-Moser systems,

Toda lattices, spin chains, random matrices, integrable maps, methods of Separation of Variables, Bäcklund transformations and Q-operators. The Workshop will be of interest to those using methods of Algebra, Analysis and Geometry in various problems of regular dynamics.

Confirmed speakers are:

- Yu. Berest (Cornell)
- L. Mason (Oxford)
- A. Bobenko (Berlin)
- P. van Moerbeke (Louvain-la-Neuve)
- E. Corrigan (York)
- A. Perelomov (Moscow)
- A. Grunbaum (Berkeley)
- N. Reshetikhin (Berkeley)
- L. Haine (Louvain-la-Neuve)
- F. Smirnov (Paris)
- J. Hurtubise (Montréal)
- E. Sklyanin (St.Petersburg)
- A. Its (Indianapolis)
- M. Semenov-Tian-Shansky (Dijon)
- V. Korepin (New York)
- P. Vanhaecke (Poitiers)
- D. Markushevich (Lille)
- A. Veselov (Loughborough)

The organisers are: Allan Fordy (Leeds), Vadim Kuznetsov (Leeds) and Michael Semenov-Tian-Shansky (Dijon). Requests for support should be addressed to Vadim Kuznetsov ([vadim@amsta.leeds.ac.uk](mailto:vadim@amsta.leeds.ac.uk)) Department of Applied Mathematics, University of Leeds, Leeds LS2 9JT, and should include brief letters of endorsement from supervisors. Some funds are available to contribute in part to the expenses of research students who wish to attend the meeting. Registration details can be found on the Workshop web page (<http://www.amsta.leeds.ac.uk/~vadim/work.html>).

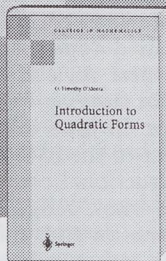
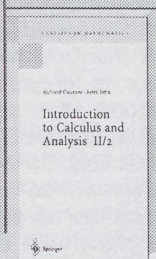
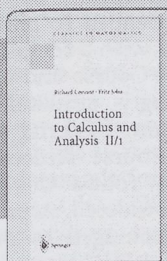
## MATHEMATICIAN VISITING THE UK IN 1999/2000

Professor Zhenhai Liu (Changsha University of Electric Power, China) is visiting Leicester University from 7 November 1999 to 5 May 2000. His interest is Differential Equations.



# Back to the Future

CLASSICS IN MATHEMATICS 



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**T.O. O'Meara**

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*Bulletin of the AMS*

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## LMS/EPSRC SHORT INSTRUCTIONAL COURSES PROGRAMME

### Notes for Organisers

#### Introduction

The LMS/EPSRC programme of Short Instructional Courses started in 1993. Initially the LMS identified topics and organisers and arranged peer reviews of proposals, then applied for funding from EPSRC on an *ad hoc* basis. In June 1999, EPSRC awarded a contract to the LMS to organise and run its instructional course programme covering the whole range of Pure and Applied Mathematics and, subject to EPSRC approval, other subject areas within the EPSRC Mathematics Programme's remit. It is anticipated that 15 Short Courses will be provided during the three-year period of the contract.

The principal aim of the programme is to provide training for postgraduate students in fundamental core areas of mathematics. Many UK mathematics departments now have neither the resources nor the expertise to mount a wide variety of such courses and so, in consequence, many students are in danger of receiving formal instruction in only a narrow range of topics. This problem is now being further exacerbated by the decline in MSc courses. The programme of Short Instructional Courses is intended to help to meet this shortfall in a highly efficient manner.

It is believed that the programme will bring other benefits. Many students lead a relatively isolated existence now; although receiving excellent supervision, they may lack the stimulating interaction with other students that only large graduate schools can provide. It is hoped that participants in Short Courses will derive stimulus from discussion with other students and from the sense of community that the common aim fosters. Normally, a course will cover a topic of benefit to at least 30 UK research students and contain material accessible to those in their first year. The topic for a Short Course might be one of central importance in which the UK is under-represented, in the hope that students will be encouraged to undertake

research in the area or incorporate such ideas in their research work.

These notes are intended to provide a prospective organiser with a template for a Short Instructional Course and to give guidance in preparing a proposal. It is understood that some material might require a different course structure so proposals that do not follow this model absolutely will be considered. A prospective organiser is encouraged to discuss her/his plans with the Facilitator for the programme (see below) at an early stage.

#### Structure

A Short Course should normally run over five or six working days, possibly with a mid-week afternoon off for an excursion. There should normally be three intensive courses of lectures, each at the rate of one hour per day. The material should be accessible to first year research students and of benefit to all research students; it should be broad enough to attract 30 UK students (numbers will usually be limited to 60). There should not be more than 18 hours of lectures. The lecturers will not usually be all from the same institution.

In addition to the lectures there should be daily tutorial (or trouble-shooting) sessions where the students discuss problems and questions arising from the lectures. Two or more postdoctoral assistants would normally be appointed to run these sessions, as students then feel freer to discuss their difficulties and to ask questions. Exercise sheets, prepared in advance by the lecturers, could be used in these sessions. A few special lectures on related (possibly more advanced) material can also be included.

#### Finance

The lecturers, organiser and tutors for a Short Course receive honoraria for their work. A lecturer should normally receive an honorarium of not less than £600 for a five-hour course or £700 for a six-hour course. A scientific organiser, who also deals with local arrangements, will nor-



mally receive an honorarium. The rate for tutors will depend on their number and duties and should be agreed between the LMS and the organiser.

Participants should normally be charged a registration fee of £60. It is expected that for EPSRC students, the registration fees will be paid by their departments from RTSG funds. Sufficient funds are available for each Short Course to meet the full subsistence and accommodation costs (but not travel costs) of at least 30 research students at UK universities. Again it is expected that EPSRC students will obtain their travel costs from RTSG funds. Non-EPSRC students are also expected to obtain travel costs from their departments, but there are restricted LMS funds available in case of hardship. If it is planned to hold a Short Course in September, then it is important to ensure that new EPSRC grant holders register from the beginning of September, in order to be eligible for EPSRC support. Overseas students are welcome at Short Courses but must pay the full costs of participation; again some LMS funds may be available to assist overseas students by agreement between the LMS and the organiser.

In addition to subsistence costs of the student participants, travel and subsistence costs of the organiser, lecturers and tutors, honoraria, the other main budget item will be hire of a lecture room. Most secretarial work, preparation of posters and other publicity material and mailing will be done at LMS headquarters and will not be a charge on the budget.

### Proposal

A proposal should be of about two A4 pages in length. It should include the following information.

- The general mathematical area of the proposed Course and its importance.
- The aims of the Course, its appropriateness to the Short Course programme and the likely level of demand for the Course.
- The names and affiliations of the lec-

turers, titles of their courses and brief syllabuses.

- The provision for tutorial support.
- Budget.

The proposal should be sent to Professor E.G. Rees, Chairman, LMS Research Meetings Committee, Department of Mathematics and Statistics, University of Edinburgh, The King's Buildings, Mayfield Road, Edinburgh EH9 3JZ.

### Timetable and Publicity

A proposal should normally be made at least one year in advance of the proposed date of the Course. The LMS will obtain referees' reports and a decision on approval of the Course will be reached ten months in advance of the proposed date.

Six months in advance of the Course, the organiser should supply information for a *Newsletter* notice that will appear five and four months in advance. The notice will be prepared by the LMS and will be used as the basis for a poster that will be circulated to all UK Mathematics Departments, together with Registration Forms, five months in advance. The LMS will prepare the Registration Form, keep records of applications and keep the organiser informed about the number of applicants. All publicity material will be put on the LMS website.

If participation is to be limited, a decision on those who are to attend should be made by the organiser shortly after the closing date for registration, which would be usually about 10 weeks before the date of the Course. Participants selected will be notified by the LMS eight weeks in advance. This mailing should include statements of prerequisites, reading list, timetable and map, master copies to be supplied to the LMS by the organiser.

### Report

Organisers of Short Courses are required to submit an academic report and a financial statement not more than three months after the end of the Course. The academic report should specify the aims of the Course and the extent to which



these were achieved and include the following information: a copy of the programme including lectures and other academic activities; a list of participants with a breakdown (EPSRC research students, other UK participants, overseas participants); results of a student questionnaire. LMS/EPSRC attach great importance to the student questionnaire. It will be prepared by the LMS after consultation with the organiser. The financial statement should include: accommodation, subsistence and travel costs (itemised by person); local administrative costs; any other costs.

### Facilitator

The LMS has appointed Dr A.R. Pears as Facilitator for the Short Course programme for the first two years of the contract period. He will assist with organisation, administration and publicity for Short Courses, thereby freeing organisers to devote themselves to scientific aspects of their meetings. He will also assist organisers in preparing the report and accounts of the Course. It is expected that by the end of the Facilitator's period of office, an administrative structure will have been established at LMS headquarters to provide such help to organisers in the future.

The Facilitator will welcome suggestions for topics for Short Courses and of potential organisers. He will be pleased to discuss possible proposals and budgets with anyone interested and can be contacted at the London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HP, or by e-mail ([alan@lowfld.u-net.com](mailto:alan@lowfld.u-net.com)).

## LMS DURHAM RESEARCH SYMPOSIA

The LMS Research Meetings Committee is responsible for the planning of the LMS Durham Symposia, which have been running successfully each July since 1974, with over 60 symposia to date, in a wide range of mathematical disciplines. In 2000 there will be 3 Durham Symposia:

- Computational Number Theory (H. Cohen, J.E. Cremona, N.P. Smart)
- Geometric Integration (C.J. Budd, A. Iserles, E. Mansfield)
- K-theory and Analysis (J. Brodzki, J.R. Hunton, R. Plymen)

The most recent symposia have been:

- 1999 Quantum Groups (S. Donkin, A.N. Pressley, A. Sudbery)
- 1999 Stochastic Analysis (E. Bolthausen, L. Gross, T.J. Lyons)
- 1998 Mathematics and Physics of Higher-Dimensional Solitons (R.S. Ward, W.J. Zakrzewski)
- 1997 Pro-p Groups and Related Topics (M.P.F. du Sautoy, D. Segal, A. Shalev)
- 1996 Galois Representations in Arithmetic Algebraic Geometry (A.J. Scholl, R.L. Taylor)
- 1996 Model Theory of Fields (A.J. Macintyre, A.J. Wilkie)
- 1996 Partial Differential Equations and Spectral Theory (Yu. Safarov, D. Vassiliev)
- 1995 Mathematical Models of Liquid Crystals and Related Polymeric Systems (F.M. Leslie, T.C.B. McLeish, I.W. Stewart)

Detailed proposals for symposia are made at least two years ahead. For each symposium an application is made to EPSRC for a substantial research grant, to cover the subsistence costs of all invited participants, and some travel. Considerable assistance is available in preparing the scientific and financial case for the proposals, and in the running of the symposium itself. More information about Durham Symposia is available on the LMS website ([http://www.lms.ac.uk/activities/research\\_meet\\_com/](http://www.lms.ac.uk/activities/research_meet_com/)).

The LMS Research Meetings Committee welcomes ideas for symposia for 2002 and later, from potential organisers and others, who should contact the Chairman of the Committee, Professor E.G. Rees ([elmer@maths.ed.ac.uk](mailto:elmer@maths.ed.ac.uk)). For symposia to take place in 2002, proposals should be made as soon as possible.



# LONDON MATHEMATICAL SOCIETY

## BRITISH SOCIETY FOR THE HISTORY OF MATHEMATICS

### JOINT TWO DAY MEETING

### HILBERT'S PROBLEMS: PAST AND FUTURE

Friday 19 - Saturday 20 May 2000  
Mathematical Institute, Oxford

The following have agreed to speak:

- Jeremy Gray (Open) *Hilbert, Göttingen, and the Reputation of the Problems*
- David Rowe (Mainz) *Geometry, Axiomatisation and Foundations (The first 6 problems)*
- Norbert Schappacher (Strasbourg) *Modern Algebra (Problems 7 to 12 and 14)*
- Craig Frazer (Toronto) *Hilbert and Analysis (Problems 19 to 23)*
- John Ball FRS (Oxford) *Analysis (Calculus of Variations)*
- Simon Donaldson FRS (Imperial College, London) *Geometry*
- Hugh Woodin (Berkeley) *The Continuum Hypothesis*
- Don Zagier (Bonn)

Organisers: Jeremy Gray and Peter Neumann

A dinner on the Friday evening will be held in St Cross College.

Some funds are available to contribute in part to the expenses of members of the London Mathematical Society or research students who wish to attend the meeting. Requests for support should be addressed to the Meetings and Membership Secretary, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HP (requests should include an estimate of expenses and a very brief *curriculum vitae*; research students should include brief letters of endorsement from their supervisors).



**European Mathematical Society Summer School**  
**NEW ANALYTIC AND GEOMETRIC METHODS**  
**IN INVERSE PROBLEMS**

Edinburgh, 24 July to 2 August 2000

**Conference**  
**RECENT DEVELOPMENT IN THE WAVE FIELD AND**  
**DIFFUSE TOMOGRAPHIC INVERSE PROBLEMS**

Edinburgh, 3-5 August 2000

The goal of the summer school is to provide an overview of certain geometric and analytic methods and to emphasize their applicability within the area of inverse problems. Around half the lectures will concentrate on the mathematical background material such as differential and integral geometry and boundary control theory of partial differential equations. The other half will emphasize inverse problems themselves, demonstrating how general mathematical theory relates to this applied area. Speakers will include D. Burago, A. Katchalov, M. Lassas, G. Lebeau, A. Melin, L. Paivarinta, V. Sharafutdinov and G. Uhlmann. The programme is intended mainly for PhD candidates and young researchers in pure and applied mathematics.

Participants will have an opportunity to participate in the three-day conference to be held immediately after the Summer School. This conference will bring together leading experts of the field of inverse problems. In addition to invited talks there will be some opportunities for contributed talks. The main themes are expected to be: inversion techniques for complex systems; inverse problems of crack identification and retrieving of singularities; and stability estimates in inverse problems and numerical implementation.

Both meetings are supported by the European Commission under Framework V.

Information on the scientific content of either meeting can be obtained from the organisers: Y. Kurylev (y.v.kurylev@lboro.ac.uk) or E. Somersalo (erkki.somersalo@hut.fi).

The websites for the meetings contain detailed information, including registration forms. They can be located via the current ICMS programme page (<http://www.ma.hw.ac.uk/icms/current/>).

**THE INTERNATIONAL CENTRE FOR MATHEMATICAL SCIENCES**  
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# THIRD EUROPEAN CONGRESS OF MATHEMATICS

## Barcelona, 10 - 14 July 2000

### Second Announcement

Organised by the Societat Catalana de Matemàtiques, under the auspices of the European Mathematical Society

#### Congress Venue

The Third European Congress of Mathematics (3ecm) will be held in the Palau de Congressos, which is situated on the premises of the Fira de Barcelona, not far from the old historical centre of Barcelona and on the hillside of Montjuïc. It can easily be reached by metro or bus.

#### Plenary Lectures

- Robbert Dijkgraaf (Amsterdam)
- Hans Föllmer (Humboldt-Universität, Berlin)
- Hendrik W. Lenstra, Jr. (Berkeley and Leiden)
- Yuri I. Manin (MPIM, Bonn)
- Yves Meyer (ENS Cachan)
- Carles Simó (UB, Barcelona)
- Marie-France Vignéras (Paris 7)
- Oleg Viro (Uppsala and St. Petersburg)
- Andrew J. Wiles (Princeton)

#### Parallel Lectures

- Rudolf Ahlswede (Bielefeld)
- François Baccelli (INRIA and ENS Paris)
- Volker Bach (Mainz)
- Viviane Baladi (Paris-Sud)
- Joaquim Bruna (UAB, Bellaterra)
- Xavier Cabré (UPC, Barcelona)
- Peter J. Cameron (QMWC, London)
- Ciro Ciliberto (Roma 2)
- Zoé Chatzidakis (CNRS and Paris 7)
- Gianni Dal Maso (SISSA, Trieste)
- Jan Denef (KU Leuven)
- Barbara Fantechi (Udine)
- Alexander B. Givental (Berkeley and Caltech)
- Alexander Goncharov (Brown)
- Alexander Grigor'yan (Imperial College, London)
- Michael Harris (Paris 7)
- Kurt Johansson (KTH, Stockholm)
- Konstantin M. Khanin (Heriot-Watt

- and Isaac Newton Institute)
- Pekka Koskela (Jyväskylä)
- Steffen L. Lauritzen (Aalborg)
- Gilles Lebeau (EP Palaiseau)
- Nicholas S. Manton (Cambridge)
- Ieke Moerdijk (Utrecht)
- Eric M. Opdam (Leiden)
- Thomas Peternell (Bayreuth)
- Alexander Reznikov (Durham)
- Henrik Schlichtkrull (Kobenhavns)
- Bernhard Schmidt (Augsburg)
- Klaus Schmidt (Wien)
- Bálint Tóth (TU Budapest)

#### Mini-Symposia

The following list of topics was chosen by the Scientific Committee. Speakers at each mini-symposium have been contacted by the corresponding chairperson. Names are given of those who have already accepted the invitation as of November 1999.

- **Computer Algebra** Chair: Wolfram Decker (Universität des Saarlandes). Speakers: Gert-Martin Greuel (Kaiserslautern), Manuel Bronstein (INRIA, Sophia Antipolis), Erich Kaltofen (North Carolina), Hendrik W. Lenstra, Jr. (Berkeley and Leiden).
- **Curves Over Finite Fields and Codes**. Chair: Gerard van der Geer (Amsterdam). Speakers: Kristin Lauter (Michigan, Ann Arbor), Christian Maire (Bordeaux I), Ruud Pellikaan (TU Eindhoven), Henning Stichtenoth (Essen), Chaoping Xing (NU Singapore).
- **Free Boundary Problems** Chair: José Francisco Rodrigues (Lisboa). Speakers: Giovanni Bellettini (Roma 2), Klaus Deckelnick (Sussex), Irina V. Denisova (Russian Academy of Sciences), Josephus Hulshof (Leiden), Régis Monneau (CERMICS and ENPC Marne-la-Vallée), Henrik Shahgholian (KTH, Stockholm), José Miguel Urbano (Coimbra).



- **Mathematical Finance: Theory and Practice** Chair: Hélyette Geman (Paris IX and ESSEC). Speakers: Tomas Björk (Stockholm School of Economics), Ernst Eberlein (Freiburg), Dilip Madan (Maryland), Stanley R. Pliska (University of Illinois at Chicago), Ton Vorst (Erasmus Universiteit Rotterdam).
- **Mathematics in Modern Genetics** Chair: Peter Donnelly (Oxford). Speakers: David Balding (Reading), Augustine Kong (Decode Genetics, Reykjavik), Simon Tavaré (Southern California).
- **Quantum Chaology** Chair: Sir Michael Berry (Bristol). Speakers: Eugene Bogomolny (CNRS, Orsay), Monique Combescure (Paris-Sud), Alex Eskin (Chicago), Christopher Howls (Southampton), Jonathan Keating (Bristol), Jens Marklof (IHES and Princeton), Zeév Rudnick (Tel Aviv), André Voros (CENS, Saclay).
- **Quantum Computing** Chair: Sandu Popescu (Cambridge). Speakers: Richard Cleve (Calgary), Artur Ekert (Oxford).
- **String Theory and M-Theory** Chair: Michael R. Douglas (Rutgers). Speakers: Duiliu-Emanuel Diaconescu (IAS), Chris Hull (QMWC, London), J.M.F. Labastida (Santiago), Marcos Mariño (Yale), Nikita Nekrasov (ITEP, Moscow), Angel M. Uranga (CERN, Genève).
- **Symplectic and Contact Geometry and Hamiltonian Dynamics** Chair: Mikhail B. Sevryuk (Russian Academy of Sciences). Speakers: Paul Biran (Tel Aviv), Hansjörg Geiges (Leiden), Viktor L. Ginzburg (UC, Santa Cruz), Alberto Ibort (UCM, Madrid), Angel Jorba (UB, Barcelona), Dietmar Salamon (ETH Zürich), Vladimir M. Zakalyukin (Moscow Aviation Institute).
- **Wavelet Applications in Signal Processing** Chair: Andrew T. Walden (London). Speakers: Richard G. Baraniuk (Rice), Peter Craigmile (Washington), Patrick Flandrin (ENS Lyon), Vasily Strela (Drexel).

## Round Tables

- Building Networks of Cooperation in Mathematics. Moderator: Friedrich Hirzebruch (MPI für Mathematik, Bonn).
- How to Increase Public Awareness of Mathematics.
- Mathematics Teaching at the Tertiary Level. Moderator: Vladimir Tikhomirov (Moscow State University).
- Shaping the 21st Century. Moderator: Miguel de Guzmán (Universidad Complutense de Madrid).
- The Impact of Mathematical Research on Industry and *vice versa*. Moderator: Irene Fonseca (Carnegie Mellon University, Pittsburgh).
- The Impact of New Technologies on Mathematical Research. Moderator: Rafael de la Llave (University of Austin).
- What is Mathematics Today? Moderator: Zbigniew Semadeni (Uniwersytet Warszawski).

## Registration

In order to register, please fill in the data requested on the Congress web site <http://www.iec.es/3ecm> and submit the electronic form as indicated by the server. You may also print the registration form, fill it in, and send it to Viajes El Corte Inglés by fax or by ordinary mail (the address is given below). If you cannot access the Internet, please request a copy of the registration form from the Societat Catalana de Matemàtiques. There is a reduced fee for those registering before 1 April 2000. The registration form includes an accommodation document. Viajes El Corte Inglés, the Travel Agency for the 3ecm, has block-booked hotel rooms and university residences of various categories.

## Call for Posters

All registered participants will have the opportunity to present their mathematical work in the form of a poster. Decisions on acceptance will be made by the Organising Committee on the basis of an abstract which should reach the organ-



isers before 1 March 2000. It is strongly recommended that abstracts be submitted electronically by using the form provided in the 3ecm web site (<http://www.iec.es/3ecm/posters.htm>).

### Deadlines

For submission of poster abstracts: 1 March. For registration at a reduced fee: 1 April

### Contact Addresses

- Congress e-mail: [3ecm@iec.es](mailto:3ecm@iec.es)
- Mailing address: Societat Catalana de Matemàtiques, Institut d'Estudis Catalans, Carrer del Carme, 47, E-08001 Barcelona, Spain (tel: +34 93 270 16 20, fax: +34 93 270 11 80)

## ONE-DAY MEETING IN COMBINATORICS

A one-day meeting in Combinatorics will take place on Wednesday 9 February at the Department of Mathematics, University College London. The meeting will begin at 11 am and the speakers are Martin Dyer (Leeds), Miklós Laczkovich (Budapest), Colin McDiarmid (Oxford), Hans-Jürgen Prömel (HU Berlin) and Alan Sokal (NYU). The organisers are grateful to the British Combinatorial Committee for financial support. For further information contact Alex Scott (e-mail: [scott@math.ucl.ac.uk](mailto:scott@math.ucl.ac.uk), tel: 0171 504 2128), or visit <http://www.ucl.ac.uk/Mathematics/>.

## "JEMS" - a GEM!

In 1999 the European Mathematical Society launched its first periodical - *Journal of the European Mathematical Society*, or "JEMS" for short. JEMS publish research papers in all active areas of pure and applied mathematics, selected by a distinguished international board of Editors and Associate Editors for their outstanding quality and interest, according to the highest international standards. Occasionally JEMS will also publish substantial survey articles on topics

of exceptional impact.

Its Editor-in-Chief is J. Jost (Leipzig - [jost@mis.mpg.de](mailto:jost@mis.mpg.de)); its Editors are L. Ambrosio (Pisa), G. Ben Arous (Lausanne), J. H. Coates (Cambridge), H. Hofer (NYU) and A. Merkurjev (UCLA); the Associate Editors are V. Baladi, O.E. Barndorff-Nielsen, C. de Concini, J.-M. Coron, I. Daubechies, S. Donaldson, W. Hackbusch, W. Kendall, J. Kollár, A. Lasota, E. Looijenga, L. Lovasz, S. Luckhaus, A. Macintyre, I. Madsen, M. Mrozek, S. Novikov, P. Pansu, A. Parshin, A. Quarateroni, C. Voisin and G.M. Ziegler.

JEMS is published in one volume per year, comprising four quarterly issues - ISSN 1435-9855 - Title No. 10097; ISSN (electronic edition) 1435-9863. The annual subscription price for institutional subscribers is DM 396 plus carriage. Requests for institutional subscriptions should be sent to Springer-Verlag directly or via a 'subscription agent'. The personal annual subscription price for EMS members (for their own personal use) is DM 80; this year such subscription requests should be sent to the EMS office directly by the individual. There are special subscription rates available for subscribers in Central European and Eastern European countries. Further information on these is available from Springer-Verlag for institutional subscriptions, and from the EMS Helsinki office for EMS members. A subscription form for JEMS will be available shortly on the EMS information server "EMIS", together with further information on JEMS. Electronic subscriptions will be forwarded by the EMIS server directly to Springer-Verlag, Berlin, who publish JEMS on behalf of EMS.

JEMS is one part of the continuing effort of EMS to promote joint scientific efforts among the many diverse structures that characterise European mathematics. EMS invites you to submit papers to JEMS, which currently has only a short waiting list, and to subscribe to JEMS too.

David A Brannan  
EMS Secretary



## MATHEMATICS IN SIGNAL PROCESSING

The 5th IMA conference in this popular series (held once every four years) will take place at the Arts Centre, University of Warwick from 18 to 20 December 2000. The aim of the conference is to bring together mathematicians and engineers with a view to exploring recent developments and identifying fruitful avenues for further research. The keynote paper by Professor Pierre Comon will be on "Tensor Decompositions: State of the Art and Applications". Contributed papers are invited on all aspects of mathematics in signal processing. A 300 - 500 word abstract should be submitted by 28 April 2000 to: Pamela Bye, The IMA, Catherine Richards House, 16 Nelson Street, Southend on Sea, SS1 1EF. Further details can be found on the IMA website (<http://www.ima.org.uk/mathematics/conferences.htm>).

## SPATIAL STRUCTURES IN BIOLOGY AND ECOLOGY: MODELS AND METHODS

The European Society for Mathematical and Theoretical Biology (ESMTB) is happy to announce a Biomathematics Summer School to be held in Martina Franca (Taranto, Italy) from 4 - 15 September 2000.

The purpose of the school is to present recent advances and offer interdisciplinary training in the modeling and the study of spatial structures encountered in biology and ecology. The approach will consist in the presentation of real life examples together with the treatment of the models by which these examples may be represented, with the perspective of extracting generally valid and useful methods and techniques.

The target audience is composed of advanced graduate students and post-doctoral researchers. Individuals with a mathematical background (mathematics, applied mathematics, physics, engineering) interested in biological problems, as

well as participants from the biological fields (ecology, biology, medicine, natural sciences, etc) willing to employ mathematical techniques in the study of their problems, are encouraged to apply.

### Courses

- Morphogenesis (P. Maini, N.A.M. Monk, E. Plathe, G.F. Oster) (10 units)
- Taxis and Diffusion (T. Hillen, A. Stevens) (6 units)
- Modelling Cell Migration (M. Chaplain) (6 units)
- Time Scales and Space (P. Auger, J.C. Poggiale, E. Sánchez) (6 units)
- Metapopulation Dynamics (M. Gyllenberg) (10 units)
- Interacting Particles and Stochastic Differential Equations (V. Capasso, S. Gueron) (6 units)
- Computer Simulation of Populations (A. Deutsch, A. Lomnicki, C. LePage) (10 units)
- Estimation (A. De Gaetano) (6 units)
- Numerical Methods (L.M. Abia, J.C. López-Marcos) (6 units)

Participants will be lodged at the Park Hotel S. Michele; it is a nice hotel, with a well kept garden and a large swimming pool. The Lectures will be at the Palazzo Ducale (City Hall), within short walking distance, at the Sala Arcadia. Updated information about the school as well as a direct contact form is to be found on the web page ([http://www.mat.unimi.it/~miriam/ESMTB/MARTINA-SS/summer\\_school.html](http://www.mat.unimi.it/~miriam/ESMTB/MARTINA-SS/summer_school.html)).

## DEPARTMENTAL NEWS

**Warwick University** New appointments in the Department of Mathematics: Professors: Robert MacKay (Dynamical Systems and Mathematical Physics), Andrew Stuart (Computational Applied Mathematics). Lecturers: Claude Baesens (Dynamical Systems and applications to Physics), Peter Topping (PDEs), Balasz Szendroi (Algebraic Geometry). Promotions to Personal Chairs: John Rawnsley and Colin Rourke.



# Isaac Newton Institute for Mathematical Sciences

## EUROWORKSHOP RIGIDITY IN DYNAMICS AND GEOMETRY

27-31 March 2000

**The overall programme** The six month programme at the Newton Institute deals with ergodic theory and its recent applications to problems in rigidity of group actions, and number theory. This includes such important developments as the classification of the actions of higher rank groups, unipotent flows on homogeneous spaces and the Oppenheim conjecture.

**The Workshop** This meeting will be organized by M. Burger (ETH Zürich), A. Eskin (Chicago), and G. Margulis (Yale). The main topics covered by this meeting will be the following: 1. Flows on homogeneous spaces and number theory. 2. Rigidity and quasiisometries. 3. Spaces of nonpositive curvature. 4. Compact quotients of homogeneous spaces. 5. Rational billiards and Teichmüller spaces. 6. Random walks, harmonic measures and mixing.

**Possible participants** S. Adams, H. Abels, M. Babillot, V. Bernik, V. Bergelson, M. Bourdon, F. Dal'bo, S. Dani, M. Dodson, T. Drumm, B. Farb, R. Feres, L. Flaminio, P. Foulon, A. Furman, W. Goldman, Y. Guivarc'h, A. Iozzi, V. Kaimanovich, A. Katok, B. Kleiner, G. Knieper, B. Leeb, H. Oh, D. Gaboriau, T. Kobayashi, F. Labourie, L. Lifschitz, A. Lubotsky, L. Mosher, H. Pajot, F. Paulin, M. Raghunathan, C. Series, V. Schroeder, R. Schwartz, N. Shah, Y. Shalom, M. Skriganov, A. Starkov, A. Stepin, E. Stein, G. Tomanov, A. Torok, T. Venkataramani, M. Wang, A. Valette, S. Velani, A. Vershik, P. Walters, D. Witte, K. Whyte, A. Zeghib, A. Zorich, A. Zuk.

This Euroworkshop is supported by the European Community and funding is available to support some young researchers. It is intended for nationals of EC Member States and of Iceland, Liechtenstein, Norway, Israel, Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia and Switzerland, who must all be under 35 years of age. There is a limited amount of support available, particularly for EC participants and USA participants (through the generous support from the NSF). Self-supporting participants of any age and nationality are welcome to apply.

**Location and Cost** The lectures will take place at the Newton Institute, Cambridge. Accommodation and meals can be provided for the week at neighbouring Wolfson Court for a cost of £300.

**Further information and application forms** These are available from WWW at <http://www.newton.cam.ac.uk/programs/ernw02.html>, where further information about the meeting will be posted and updated.

**Completed application forms** should be sent to Tracey Andrew at the above address, or via e-mail ([t.andrew@newton.cam.ac.uk](mailto:t.andrew@newton.cam.ac.uk)).

**Closing date** for receipt of applications is **11 February 2000**.



**An Introduction  
to the Analysis  
of Paths on a  
Riemannian  
Manifold**

Daniel W. Storch

AMS



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# 52nd British Mathematical Colloquium University of Leeds, 17 - 20 April 2000

## Programme

### Monday 17 April

- 4.30 pm Plenary speaker: Simon Donaldson (Imperial College)  
8.30 pm Plenary speaker: Sir Michael Atiyah (Edinburgh)  
*Mathematics in the 20th century*

### Tuesday 18 April

Morning speakers: Dirk van Dalen, Tom Lenagan, Franz Pedit,  
Nicolai Reshetikhin, Ulrike Tillman, Boris Zilber

- 2 pm Special Session *Harmonic maps and minimal surfaces*  
Paul Baird, Mario Micallef, Peter Topping  
5 pm Plenary speaker: Vaughan Jones (Berkeley)

### Wednesday 19 April

Morning speakers: Jacek Brodzki, Mirna Džamonja, Maxim Nazarov,  
Marc Rieffel, Geoffrey Robinson, Michael Spiess

- 2 pm Special session *Operator algebras*  
Claire Anantharaman-Delaroche, Søren Eilers, Simon Wassermann  
5 pm Plenary speaker: Harvey Friedman (Ohio)

### Thursday 20 April

Morning speakers: John Coates, Burt Totaro, Alexander Veselov,  
Nicholas Young

11.30 am Plenary speaker: Jens Carsten Jantzen (Aarhus)

Splinter groups will take place on Tuesday and Wednesday afternoons in parallel with the special sessions. The following splinter groups have already been arranged:

Algebra	Integrable Systems
Algebraic Topology	Mathematical Education
Functional Analysis	Mathematical Logic
History of Mathematics	Number Theory

For the detailed programme, and the registration form, see the web page ([www.amsta.leeds.ac.uk/bmc](http://www.amsta.leeds.ac.uk/bmc)) or contact the Secretary: Dugald Macpherson, School of Mathematics, University of Leeds, Leeds LS2 9JT (H.D.Macpherson@leeds.ac.uk).

The British Mathematical Colloquium is supported financially by the London Mathematical Society, the Edinburgh Mathematical Society and Maths Year 2000.



Isaac Newton Institute for Mathematical Sciences  
and  
Warwick MRC joint Workshop

ERGODIC THEORY OF  $\mathbb{Z}^d$ -ACTIONS

3-7 April 2000

*(Please note: this Workshop will take place at the  
Mathematical Institute of the University of Warwick)*

**The Workshop** This workshop is part of a six-month programme at the Isaac Newton Institute. This programme deals with ergodic theory and its recent applications to problems in rigidity of group actions, and number theory. However, the venue for this meeting will be at the Mathematical Institute of the University of Warwick. This meeting will also review progress since the 1993-94 Symposium on the same theme and consolidate some of the more recent developments.

**The Workshop Organisers** This meeting will be organised by M. Pollicott (Manchester), K. Schmidt (Vienna) and P. Walters (Warwick).

**Possible participants** J. Aaronson; M. Boyle; S. Bullett; R. Burton; Z. Coelho; S. Dani; M. Dodson; A. Eskin; R. Feres; D. Fisher; A. Furman; H. Furstenberg; E. Glasner; I. Goldsheid; Y. Guivarc'h; S. Friedlander; D. Hecklen; B. Host; S. Hurder; A. Johnson; V. Kaimanovich; B. Kaminski; M. Keane; R. Kenyon; Y. Kifer; G. Knieper; W. Krieger; O. Kozlovski; D. Lind; B. Marcus; D. Ornstein; W. Parry; M. Kriganov; S. van Strien; R. MacKay; A. Manning; R. Nair; M. Nicol; K. Petersen; M. Raghunathan; D. Rand; D. Rudolph; C. Series; N. Shah; G. Soifer; J. Steif; A. Stepin; R. Sharp; R. Spatzier; J-P. Thouvenot; S. Tuncel; R. Veech; A. Vershik; T. Ward; B. Weiss; D. Witte; R. Zimmer.

**Further information** is available at <http://www.maths.warwick.ac.uk/> or can be obtained from Mrs Peta McAllister ([peta@maths.warwick.ac.uk](mailto:peta@maths.warwick.ac.uk)).

This meeting is supported by the EPSRC and the Isaac Newton Institute. Additionally, there is a limited amount of support available for USA participants (through the generous support of the NSF).



## NEWS FROM THE ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES

### Deputy Director

Dr Robert Hunt (Department of Applied Mathematics and Theoretical Physics and Christ's College, Cambridge) took up appointment as Deputy Director on 4 January 2000.

### Scientific Steering Committee

The following are members of the Scientific Steering Committee:

H.K. Moffatt, FRS - Director  
C.M. Elliott (Sussex)  
J. Stark (UCL)  
A.F.M. Smith (QMW)  
S. White FRS (Munich)  
N.J. Hitchin, FRS - Chairman (Oxford)  
A.J. Macintyre, FRS (Edinburgh)  
M.A. Moore, FRS (Manchester)  
R.H. Dijkgraaf (Amsterdam)  
W.T. Gowers, FRS (Cambridge)  
A. Newell (Warwick)  
E.G. Rees (Edinburgh)  
D. Zagier (Bonn)  
R. Anderson, FRS (Oxford)

### Posters in the London Underground

During World Mathematical Year 2000, a series of 12 posters illustrating a wide range of applications of mathematics will be displayed month by month on London Underground trains. The project, sponsored by EPSRC, was launched in January. More information, and copies of the posters as they appear, can be found at [www.newton.cam.ac.uk/wmy2kposters/](http://www.newton.cam.ac.uk/wmy2kposters/)

### Institute Seminars on the Web

Audio files of selected Newton Institute seminars, together with accompanying transparencies, are now available in RealAudio and MP3 format at [www.newton.cam.ac.uk/webseminars/](http://www.newton.cam.ac.uk/webseminars/)

### Forthcoming Workshops

The workshops listed will take place within the two current programmes, which run from January to July 2000:

### *Ergodic Theory, Geometric Rigidity and Number Theory*

- 10 - 14 January: Lectures on Ergodic Theory, Geometry and Lie groups [www.newton.cam.ac.uk/programs/ernw01.html](http://www.newton.cam.ac.uk/programs/ernw01.html)
- 27 - 31 March: Rigidity in Dynamics and Geometry [www.newton.cam.ac.uk/programs/ernw02.html](http://www.newton.cam.ac.uk/programs/ernw02.html) (See also full-page announcement)
- 3 - 7 April: Workshop on Ergodic theory and  $\mathbb{Z}^d$  actions (Joint with Warwick, at the Mathematics Institute, Warwick University) [www.newton.cam.ac.uk/programs/ernw03.html](http://www.newton.cam.ac.uk/programs/ernw03.html) (See also full-page announcement)
- 3 - 7 July: Conference on Ergodic Theory, Riemannian Geometry and Number Theory

### *Strongly Correlated Electron Systems*

- 5 - 8 January: Non-Fermi Liquid Effects in Metallic Systems with Strong Electronic Correlation
- 17 - 21 February: Theme week - Computational Quantum Many-Body Physics
- 10 - 20 April: NATO ASI/EC Summer School: New Theoretical Approaches to Strongly Correlated Systems
- 26 - 30 June: Strongly Interacting Electron Systems - Novel Materials and Novel Physics

### **Satellite Workshops held outside Cambridge in conjunction with Institute programmes**

Starting in 2000, there will be a series of workshops held outside Cambridge in conjunction with Institute programmes, funded jointly by the Institute and EPSRC or LMS. The organisation of such workshops usually involves a local organiser, an organiser of the associated programme, and the Institute itself.

The first satellite workshop, "Ergodic Theory of  $\mathbb{Z}^d$  actions" (see above) will be at the Mathematics Institute, Warwick,



and is funded jointly between EPSRC and the Newton Institute.

Further workshops or meetings of this type are currently being planned including:

- 21 - 23 October 2000 at Warwick, "Singularities in Classical, Quantum and Magnetic Fluids" at Warwick, in connection with the programme *Geometry and Topology of Fluid Flows*
- 16 - 21 December 2000 at Liverpool, "Quantum Integrability", in connection with the *Singularity Theory* programme
- October 2001 at ICMS, Edinburgh, in connection with the programme *Integrable Systems*

### New Programme Announcements

The following future programmes have recently been confirmed by the Scientific Steering Committee:

- 13 - 31 August 2001 **Surface Water Waves** Organisers: S.E. Belcher (Reading), T.J. Bridges (Surrey), S.G. Sajjadi (Salford)
- Sep 2002 - December 2002 **New Contexts for Stable Homotopy Theory** Organisers: J.P.C. Greenlees (Sheffield), H.R. Miller (MIT), F. Morel (Paris), V.P. Snaith (Southampton)

A full list of current and future programmes confirmed to 2002, with full details where available, can be found at [www.newton.cam.ac.uk/programs/](http://www.newton.cam.ac.uk/programs/)

### Call for Proposals

The next Call for Proposals will be issued in March 2000, with a deadline of 30 June 2000.

### DOROTHY HODGKIN FELLOWSHIPS

The Royal Society piloted a scheme in 1995 to enable young scientists to embark on a research career in UK universities for up to four years. The scheme was then established on an annual basis in 1997. Application details for appointments

from 10 October 2000 are available from the Royal Society's website ([www.royal.soc.ac.uk](http://www.royal.soc.ac.uk)). The closing date is 11 February 2000. Amongst those awarded fellowships in 1999 were: Miss R.S. Garcia and Dr R. Khanin both to work in the Department of Applied Mathematics and Theoretical Physics, University of Cambridge.

### POSTGRADUATE GROUP THEORY and POSTGRADUATE COMBINATORICS CONFERENCES

The 2nd Postgraduate Group Theory Conference and the 11th Postgraduate Combinatorics Conference will be held from 25 - 27 April 2000 at Queen Mary & Westfield College, London. The purpose of the Postgraduate Group Theory and Postgraduate Combinatorics Conferences is to bring together current postgraduate research students in Combinatorics and in Group Theory. Delegates will have an opportunity to contribute talks, which will provide good experience (for example, larger and more formal conferences where they may be making a presentation), and to discuss current research activities with others. Although the conferences are separate, some joint sessions will be held if any talks offered are of common interest, and there will be some joint social events. The programme of events will also include talks from pre-eminent combinatorialists and group theorists.

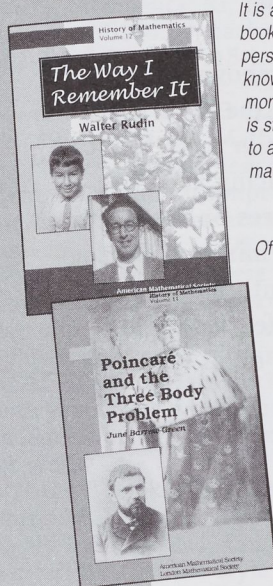
Registration is expected to cost around £100. The organisers are: Chris Pinnock (Group Theory: C.J.E.Pinnock@qmw.ac.uk, tel: +44(0) 207 882 5448) and Carrie Rutherford (Combinatorics: C.G.Rutherford@qmw.ac.uk, tel: +44(0) 207 882 5466). Address: School of Mathematics, QMW College (University of London), Mile End Road, London E1 4NS (fax: +44(0) 208 981 9587). For more details see: Group theory: <http://www.maths.qmw.ac.uk/~cjep/pgtc2000>; Combinatorics: <http://www.maths.qmw.ac.uk/~cgr/pcc2000>.



# AMERICAN MATHEMATICAL SOCIETY

## The Way I Remember It

Walter Rudin, University of Wisconsin, Madison



It is a real pleasure to read this book and to admire the charming personal style we have come to know from Rudin's textbooks, monographs and articles. The book is strongly recommended not only to analysts, but also to all mathematicians as well as historians.

—European Mathematical Society Newsletter

Of noteworthy significance.

—Zentralblatt für Mathematik

With this memoir, Rudin gives the entire mathematical community a chance to make his acquaintance both mathematically and personally, and a very worthwhile acquaintance it is. The biographical section ... is fascinating ... It's what the literary critics call "a good read" ... this book is a delight to read and will also help to inspire and guide young analysts in the path of

wisdom. You will not want to miss a single page of it ... recommend it to everyone.

—Mathematical Reviews

Walter Rudin's memoirs should prove to be a delightful read specifically to mathematicians, but also to historians who are interested in learning about his colorful history and ancestry. As those who are familiar with Rudin's writing will recognize, he brings to this book the same care, depth, and originality that is the hallmark of his work.

Volume 12; 1997; 191 pages; Softcover; ISBN 0-8218-0633-5; List \$29; All AMS members \$23; Order code HMATH/12LMS

## Poincaré and the Three Body Problem

June Barrow-Green, The Open University, Milton Keynes, UK

Delightful and interesting to read ... will help professors ... provide some very interesting (and needed) historical background to their lectures. Any serious student of mathematical history will enjoy this treatise.

—Applied Mechanics Reviews

This is a superb piece of work and it throws new light on one of the most fundamental topics of mechanics ... This book can be thoroughly recommended.

—Mathematical Reviews

A balanced and very readable book ... recommended] ... to all mathematically trained people with an interest in the historical origins of chaos.

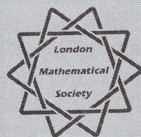
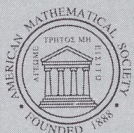
—Nonlinear Science Today

An interesting insight into the late 19th-century mathematical community and an account of [Poincaré's] memoirs reception and impact ... clearly organized, well written, richly documented ... a highly valuable contribution to the history of modern mathematics, adding value to the series in which it appeared.

—Zentralblatt für Mathematik

Poincaré and the Three Body Problem opens with a discussion of the development of the three body problem itself and Poincaré's related earlier work. The book also contains intriguing insights into the contemporary European mathematical community revealed by the workings of the competition. After an account of the discovery of the error and a detailed comparative study of both the original memoir and its rewritten version, the book concludes with an account of the final memoir's reception, influence and impact, and an examination of Poincaré's subsequent highly influential work in celestial mechanics.

Volume 11; 1997; 272 pages; Softcover; ISBN 0-8218-0367-0; List \$39; All AMS members \$31; Order code HMATH/11LMS



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AMS and LMS members may order through Oxford University Press and receive their member discounts: fax +44 (0) 1865 267782 or email at [science.books@oup.co.uk](mailto:science.books@oup.co.uk).



# *The Education of a Mathematician*

Philip J. Davis

ISBN: 1-56881-116-0

Hardcover; ca. £17.00; ca. 250 pp.

In this charming memoir, a renowned mathematician and winner of the American Book Award traces his career in mathematics from early lessons in horse racing and the realities of life to his adventures on the lecture circuit. A thought-provoking mix of autobiography, history, and insights into mathematics' increasing role in everyday life, this highly entertaining book will appeal to all readers.

An Excerpt from  
*The Education of a Mathematician:*

*I was then working on a problem that related to non-harmonic, non-absolutely convergent trigonometric series. I got stuck on a point. Here sitting in front of me was the world authority on the topic. One day, after class, I got up enough courage to ask Wiener about it. Wiener's answer was forthright. "I don't know the answer. It's a hard problem and I'm not aware that anyone knows the answer." I was disappointed, of course, but it bolstered my ego to know that at least I had the ability to dream up hard problems. And I learned this: never do what is often done; never fudge an answer to a student's question.*

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## BOOK REVIEW

**Math Talks for Undergraduates**, Serge Lang, Springer, New York, 1999, 121 pp, £22.50, ISBN0-387-98749-5.

**Kvant Selecta: Algebra and Analysis I and II**, Serge Tabachnikov (ed), Mathematical World 14 and 15, American Mathematical Society, Providence, RI, 1999, 155 pp and 165 pp, US\$24.00 each, ISBN0-8218-1002-2 and 0-8218-1915-1.

Between them, these 3 short books contain 39 articles on Mathematics. Even though the styles of these articles are different, they all attempt not only to describe the mathematics, but also to motivate it. From a UK viewpoint the more elementary of these articles in the *Kvant Selecta* should be accessible to first year undergraduates, whereas the more sophisticated, especially in Lang's book, would have to wait until the third or fourth year. They would be very useful for students working by themselves on project work.

Of the 3 books under review the most controversial (not unexpectedly!) is the one by Lang. Indeed, Lang tells us in his first lecture that his style here had been called "vulgar". What is being criticised is the spoken style, where Lang includes questions and responses from students in his class. This can be very helpful to the reader. For example, he introduces the Riemann hypothesis in a non-standard way and then receives the *Comment from the audience*: "That's not the way that the Riemann hypothesis is usually stated". (*Comment from the reviewer*; I was thinking the same here.) Lang then explains why he is stating the hypothesis in this way, which is very helpful. On the other hand the following dialogue may raise some eyebrows and also turn some QAA inspectors apoplectic! Lang was lecturing to an audience including both staff and students at UC Berkeley. He asked a question of the audience. Two of the staff said yes and then he pointed to a student and asked "what do you think"? The student said "sure". Unfortunately, the answer

was no. After explaining why, Lang said to the student "So it's not so sure, is it? Use your own brains. If you don't know or want to think about it, say so". Student participation is absent in the later lectures! Anyhow, the whole book makes good reading and offers insights into the mathematics it describes. The titles of the lectures are 1. Prime numbers, 2. The *abc* conjecture, 3. Global Integration of locally integrable vector fields, 4. Approximation theorems of analysis, 5. Bruhat-Tits spaces, 6. Harmonic and Symmetric Polynomials.

The two books of the *Kvant Selecta* are the first in a series of translations published in the Russian magazine "*Kvant*" (meaning "Quantum") since 1970. These had a big influence on mathematics and physics education in the Soviet Union. Even though this was a popular magazine often aimed at high school students the authors included many of the leading Soviet Mathematicians, for example, A. Aleksandrov, P. Aleksandrov, V. Arnol'd, I. Bernstein, V. Boltyaskii, A. Fomenko, D. Fuchs, S. Gindikin, A. Katok, A. Krillov, A. Kolmogorov, M. Krein, Yu. Matiyasevich, L. Pontryagin, V. Tikhomirov, N. Vilenkin. Each issue was very cheap (about the price of a lunch) and at its height had 300,000 subscribers. Can we imagine such a magazine in the UK and the effect it could have on Mathematics Education, both at School and University?

Even though these volumes are called *Algebra and Analysis*, there are also many articles on Number Theory and Combinatorics, binomial coefficients being especially popular. Some of the articles are quite elementary, and could be understood by a good first year student. For example, there is an article which tells us about the prime factorization of the integers  $1111\dots 1$ . (Such questions occur every year in the first year pre-analysis course at Southampton; we learn here that they were a hobby of Johann Bernoulli.) Somewhat deeper material is



covered in the article "Kepler's second law and the topology of abelian integrals (according to Newton)", by Arnol'd.

There is a tremendous amount of mathematics to be enjoyed and learnt here, both for the professional and the student. We end with advice from Lang in his inimitable style: "So just pick and choose. It beats getting stoned and it'll keep you off the streets."

David Singerman  
University of Southampton

### CALL FOR NOMINATIONS FOR THE FELIX KLEIN PRIZE

**Principal Guidelines** The prize, established in 1999 by the European Mathematical Society (EMS) and the endowing organisation, the Institute for Industrial Mathematics in Kaiserslautern, is awarded to a young scientist or a small group of young scientists (normally under the age of 38) for using sophisticated methods to give an outstanding solution, which meets with the complete satisfaction of industry, to a concrete and difficult industrial problem.

**Nomination of the Award** There are no restrictions on eligibility other than those specified in the Principal Guidelines. The prize committee is responsible for solicitation and evaluation of nominations. Nominations may be made by anyone, including members of the prize committee or by candidates themselves. It is the responsibility of the nominator to provide all relevant information to the prize committee, including a resumé and documentation of the benefit to industry and the mathematical method used.

The nomination for the award should be reported by the prize committee to the EMS president at least three months before the date of the award. The nomination for the award must be accompanied by a written justification and a citation of about 100 words that can be read at the award date. The prize is awarded to a single person or to a small group and cannot be split.

**Description of the Award** The award comprises a certificate containing the citation and a cash prize, of 5000 euro.

**Award Presentation** The prize is presented every four years at the European Congress of Mathematics. A representative of the endowing Institute for Industrial Mathematics in Kaiserslautern or the president of EMS presents the award. The recipient is invited to present his or her work at the conference.

**Prize History** The first prize will be awarded in the year 2000.

**Prize Fund** The endowing Institute for Industrial Mathematics in Kaiserslautern is responsible for managing the prize fund as well as its administration.

**Deadline for Submission** Nominations for the prize must reach the Helsinki office at the following address no later than 1 March 2000: EMS Secretariat, Ms Tuulikki Makelainen, Department of Mathematics, University of Helsinki, PO Box 4 (Yliopistonkatu 5), 00014 Finland (fax: +358-9-1912 3213, e-mail: makelainen@cc.helsinki.fi).

### CONSTANTIN CARATHEODORY

Fifty years on from Constantin Caratheodory's death, an international congress will be held from 1 - 4 September 2000 in Greece, to reflect upon his writings in the country of his birth. The Congress focuses on Caratheodory as a historical figure and his contribution to Mathematics and other Sciences. The congress will focus on topics like: Measure Theory, Function Theory, Partial Differential Equations and their applications in other areas.

For further information contact: Professor T. Vougiouklis, Democritus University of Thrace, 68 100 N. Chili, Alexandroupolis, Greece (tel and fax 0030-551-39348, e-mail: vougiou@edu.



duth.gr). The meeting is being held under the auspices of The Greek Mathematical Society, the Democritus University of Thrace and the Municipalities of Orestiada and Vissa.

### POSTDOCTORAL POSITIONS

As part of the current Improving Human Potential (IHP) Research Training Networks (RTN) programme the European Commission will provide three year funding from 1 April 2000 for a collaborative research network dedicated to the analytical and numerical study of discrete random geometries in the contexts of:

**Models of quantum gravity** matrix models

and 2D quantum gravity, discrete Lorentzian gravity, dynamical triangulations in 3D and 4D, string theory, M(atr)ix theory, Regge calculus, QCD string

**Solid state physics** spin glasses, ferromagnetic systems with quenched disorder, critical behaviour on random graphs, models of membranes

**Discrete mathematics** enumeration of meanders, graph colouring problems, folding problems

Eleven Postdoctoral positions are funded as part of the Network. For more information, go to <http://www.ma.hw.ac.uk/~des/IHP.html>

## LMS INVITED LECTURES SERIES

The Society's Invited Lectures series consists of meetings at which a single speaker gives a course of about ten expository lectures, examining some subject in depth, over a five day period (Monday to Friday) during a University vacation. The meetings are residential and open to all interested. It is intended that the texts of the lectures given in the series shall be published. In addition to full expenses, the lecturer is offered a fee of £1000 for giving the course and a further fee of £1500 on delivery of the text in a form suitable for publication. Recent lecturers in the series have been P.F. Baum (1995), F.J. Almgren (1996), J. Alperin (1997), D. Zagier (1998), A. Mielke (1999). The 2000 lectures will be given at the Mathematical Institute, Oxford by B. Dubrovin.

For the 2001 meeting, proposals are now invited from any member who, in addition to suggesting a topic and lecturer, would be prepared to organize the meeting at the member's own institution or a suitable conference centre. Enquiries about this series should be directed to the Executive Secretary, Dr D.J.H. Garling, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HP (e-mail: [garling@lms.ac.uk](mailto:garling@lms.ac.uk), tel: 020 7637 3686, fax: 020 7323 3655) to whom proposals should be sent no later than **Friday 21 April 2000**.



# ICMS Workshop

## DYNAMICAL SYSTEMS

10-14 July Edinburgh

A satellite meeting of the XIII International Congress  
in Mathematical Physics (17-22 July, London)

**Local Organisers** Konstantin Khanin (Heriot-Watt, currently Hewlett Packard Fellow at INI), Robert MacKay (Warwick), Mark Pollicott (Manchester).

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The workshop will focus on analysis and discussion of open problems and their applications. The Organisers intend to give all participants the opportunity to make a contribution to the meeting. The workshop will be divided into sessions, each starting with a review talk, followed up by short contributed talks on associated topics.

Further information on the scientific content can be obtained from any of the Local Organisers.

**The Workshop is supported by** The Engineering and Physical Sciences Research Council and The European Science Foundation Programme on Probabilistic Methods in Non-Hyperbolic Dynamics (PRODYN).

The home pages of the meeting contain detailed information, including the main talks, a list of expected attendees and a registration form. You can locate it via the current ICMS programme site (<http://www.ma.hw.ac.uk/icms/current/>).

### THE INTERNATIONAL CENTRE FOR MATHEMATICAL SCIENCES

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## LIST OF MEMBERS OF EDITORIAL ADVISORY BOARD, 2000

Below are the subject areas, names and affiliations of the members of the joint Editorial Board of the Society's *Bulletin*, *Journal* and *Proceedings*. Submission guidelines have recently changed, please see: [www.lms.ac.uk/publications/submission.html](http://www.lms.ac.uk/publications/submission.html)

There are separate Editorial Boards for the *LMS Journal of Computation and Mathematics* and for *Nonlinearity*. Guidelines for submissions can be found at [www.lms.ac.uk/jcm/instruc/index.html](http://www.lms.ac.uk/jcm/instruc/index.html) and [www.iop.org/Journals/no/submit](http://www.iop.org/Journals/no/submit) respectively.

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**Singularity theory, real algebraic geometry** Dr D M Q Mond, Mathematics Institute, Warwick University  
**Algebraic geometry** Dr P E Newstead, University of Liverpool (until 30th March 2000)  
**Probability and related areas of analysis** Dr J R Norris, Statistical Laboratory, Cambridge  
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**Functional analysis** Professor S C Power, Lancaster University  
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**Group theory and representation theory** Professor G R Robinson, University of Leicester  
**Linear PDEs and spectral theory** Professor Y Safarov, King's College London  
**Group theory and combinatorics** Dr J Saxl, DPMMS, Cambridge  
**Algebraic geometry** Dr N I Shepherd-Barron, DPMMS, Cambridge (from 1st April 2000)  
**Nonlinear analysis and differential equations** Professor J R L Webb, University of Glasgow  
**Mathematical physics** Dr N M J Woodhouse, Wadham College, Oxford

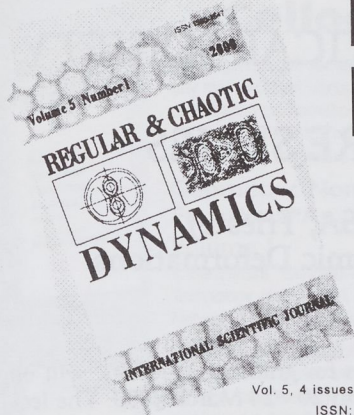


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# Regular & Chaotic Dynamics



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**Regular and Chaotic Dynamics** is a quarterly peer-reviewed international scientific journal published in English. The journal was founded in 1996 by the Moscow State University, Moscow Centre for Continuous Mathematical Education, and Udmurt State University. Then in 1999 the Department of Mathematics of the Russian Academy of Sciences became a cofounder of the journal. Starting from the first issue of 2000 the journal is published jointly by Turpion Ltd, and the Department of Mathematics of the Russian Academy of Sciences in close cooperation with Udmurt State University. The journal publishes only original research results in the analysis of regular and stochastic behaviour in determined dynamic systems that arise in classical mechanics, physics and in other areas.

## CONTENTS

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# LONDON MATHEMATICAL SOCIETY

## INVITED LECTURE SERIES

**Boris DUBROVIN (SISSA, Trieste)**  
**The Geometry of Isomonodromic Deformations**

### PROGRAMME

A series of 10 lectures, supplemented by classes for graduate students, will be given at the **Mathematical Institute, Oxford** from **20 - 24 March 2000**. The lectures will be addressed to a wide audience of experts and non-experts, and should be accessible to research students. There will also be some seminars with speakers including Nigel Hitchin and Nick Woodhouse.

### ABSTRACT

Analytic aspects of the theory of monodromy-preserving deformations of linear ordinary differential equations with rational coefficients have been studied since the beginning of the century, especially in connection with the 'Painlevé property' of integrable systems. Recently, a geometric understanding of the structure of the parameter spaces of the deformations has emerged. In particular, the structure of a Frobenius manifold was discovered on the space of isomonodromic deformations of certain systems of first order linear differential equations.

The lectures of Professor Dubrovin will explain how the geometry of Frobenius manifolds connects the theory of isomonodromic deformations with the (topological) quantum field theory associated to Gromov - Witten invariants for symplectic manifolds and with the bihamiltonian geometry of loop spaces.

### BOARD AND LODGING

Board and lodging can be arranged at St Peter's College (4 nights bed & breakfast £100; Dinner for 3 nights of Monday, Tuesday and Wednesday £30; Special Dinner Thursday evening £20). Please book with Jean Wright, St Peter's College, Oxford OX1 2DL (Jean.Wright@spc.ox.ac.uk) by **18 February 2000**.

### REGISTRATION

For further details contact the organizer Lionel Mason (lmason@maths.ox.ac.uk) or visit the web site (<http://www.maths.ox.ac.uk/~lmason/invlect.html>).

Some limited financial support is available for UK participants.



# AMERICAN MATHEMATICAL SOCIETY

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### Geometric Nonlinear Functional Analysis

#### Volume I

**Y. Benyamini**, *Technion—Israel Institute of Technology, Haifa*, and **J. Lindenstrauss**, *Hebrew University, Jerusalem, Israel*

In this book many recent rather deep theorems and delicate examples are included with complete and detailed proofs. Challenging open problems are described and explained, and promising new research directions are indicated.

Volume 48; 2000; 488 pages; Hardcover; ISBN 0-8218-0835-4; List \$65; All AMS members \$52; Order code COLL/48CLMS

### Global Solutions of Nonlinear Schrödinger Equations

**J. Bourgain**, *IAS, Princeton, NJ*

This volume presents recent progress in the theory of nonlinear dispersive equations, primarily the NLS equation.

Volume 46; 1999; 182 pages; Hardcover; ISBN 0-8218-1919-4; List \$35; All AMS members \$21; Order code COLL/46CLMS

### Fully Nonlinear Elliptic Equations

**L. A. Caffarelli** and **X. Cabré**, *IAS, Princeton, NJ*

*The book marks an important stage in the theory of nonlinear elliptic problems. Its timely appearance will surely stimulate fresh attacks on the many difficult and interesting questions which remain.*

—*Bulletin of the LMS*

Volume 43; 1995; 104 pages; Softcover; ISBN 0-8218-0437-5; List \$29; All AMS members \$23; Order code COLL/43CLMS

### Random Matrices, Frobenius Eigenvalues, and Monodromy

**N. M. Katz** and **P. Sarnak**, *Princeton University, NJ*

The main topic of this book is the deep relation between the spacings between zeros of

zeta and  $L$ -functions and spacings between eigenvalues of random elements of large compact classical groups

Volume 45; 1999; 419 pages; Hardcover; ISBN 0-8218-1017-0; List \$69; Individual member \$41; Order code COLL/45CLMS

### The Book of Involutions

**M.-A. Knus**, *Eidgenössische Technische Hochschule, Zürich, Switzerland*, **A. Merkurjev**, *University of California, Los Angeles*, **M. Rost**, *Universität at Regensburg, Germany*, and **J.-P. Tignol**, *Université Catholique de Louvain, Louvain-la-Neuve, Belgium*

This monograph is an exposition of the theory of central simple algebras with involution, in relation to linear algebraic groups. It provides the algebra-theoretic foundations for much of the recent work on linear algebraic groups over arbitrary fields.

Volume 44; 1998; 593 pages; Hardcover; ISBN 0-8218-0904-0; List \$69; All AMS members \$55; Order code COLL/44CLMS

#### RECOMMENDED TEXT

### Frobenius Manifolds, Quantum Cohomology, and Moduli Spaces

**Y. I. Manin**, *Director, Max-Planck-Institut für Mathematik, Bonn, Germany*

This is the first monograph dedicated to the systematic exposition of the whole variety of topics related to quantum cohomology. Manin's previous books have secured for him solid recognition as an excellent expositor. This book will serve mathematicians for many years to come.

Volume 47; 1999; 303 pages; Hardcover; ISBN 0-8218-1917-8; List \$55; All AMS members \$44; Order code COLL/47CLMS



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## FORTHCOMING CONFERENCES

### **THIRD MATHEMATICAL EDUCATION OF ENGINEERS**

*Loughborough University 26 – 28 April 2000*

### **COMPUTATIONAL CHALLENGES FOR THE MILLENNIUM**

*Cambridge 13-14 July 2000*

### **NINTH MATHEMATICS OF SURFACES**

*Cambridge 4 – 6 September 2000*

### **THIRD QUANTITATIVE MODELLING IN THE MANAGEMENT OF HEALTH CARE**

*University of Salford, 5 – 7 September 2000*

### **SECOND INTERNATIONAL BOUNDARY INTEGRAL METHODS: THEORY AND APPLICATIONS**

*University of Bath 11 – 15 September 2000*

### **SHORT COURSE AND THIRD IMAGING AND DIGITAL IMAGE PROCESSING: MATHEMATICAL METHODS, ALGORITHMS AND APPLICATIONS**

*De Montfort University, Leicester 12-15 September 2000*

### **SHORT COURSE AND FIRST FRACTAL GEOMETRY: MATHEMATICAL TECHNIQUES, ALGORITHMS AND APPLICATIONS**

*De Montfort University, Leicester 19-22 September 2000*

### **FIFTH MATHEMATICS IN SIGNAL PROCESSING**

*University of Warwick 18 - 21 December 2000*

### **THIRD SPATIAL PATTERNS IN PERMEABLE ROCKS**

*Churchill College, Cambridge 27 - 29 March 2000*

### **FOURTH MODELLING IN INDUSTRIAL MAINTENANCE AND RELIABILITY**

*University of Salford 9-11 April 2001*

### **ADVANCED SIMULATION AND CONTROL FOR AUTOMOTIVE APPLICATIONS**

*Keble College, Oxford 24 - 26 September 2001*

### **FURTHER DETAILS FROM:**

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J.A. DIEUDONNÉ  
Honorary Member 1972



## DIARY

The diary lists Society meetings and other events publicized in the *Newsletter*. Further information can be obtained from the appropriate LMS Newsletter whose number is given in brackets. A fuller list of meetings and events is given in the Society's web site (<http://www.lms.ac.uk/meetings/diary.html>).

### FEBRUARY 2000

- 4-6 Meeting in Honour of David Burgess's 65th Birthday, Nottingham University (274)
- 11 Edinburgh Mathematical Society Meeting, Edinburgh University (275)
- 12 British Women in Mathematics Discussion Day, Warwick University (277) (278)
- 18 Postgraduate Open Day, King's College London (277)
- 21-25 Adams Lectures (L. Smith of Göttingen University) Manchester University (277)
- 25 Meeting in Honour of Professor Sir Christopher Zeeman's 75th Birthday, Warwick University (277)
- 28 Feb -3 Mar Hyperbolic Problems Conference, Magdeburg, Germany (275)

### MARCH 2000

- 4 Inaugural Mary Cartwright Lecture, LMS Meeting, Cambridge (279)
- 10 Edinburgh Mathematical Society Meeting, Dundee University (275)
- 20-24 LMS Invited Lectures: The Geometry of Isomonodromic Deformations (B. Dubrovin), Oxford (277) (278)
- 20-24 Stochastic Analysis, LMS/EPSRC Short Course, Oxford (276) (277)
- 27-31 Quantum Computing Instructional Course, ICMS Edinburgh (276)
- 27-31 Rigidity in Dynamics and Geometry Euroworkshop, Isaac Newton Institute, Cambridge (279)
- 31-1 Apr Modelling Spatiotemporal Dynamics in Interacting Systems, LMS Meeting, Oxford (276) (278)

### APRIL 2000

- 3 - 7 Workshop on Ergodic Theory of  $Z^d$ -actions, Warwick University (277) (279).
- 5-14 Operator Algebras and Operator Spaces Instructional Conference, ICMS, Edinburgh (276)
- 8-15 Topology, Geometry & Physics Workshop, Warwick University (277)
- 10-14 Algebraic and Co-algebraic Methods in the Mathematics of Program Construction Summer School and Workshop, Oxford (278)
- 10-20 New Theoretical Approaches to Strongly Correlated Systems NATO/EC Summer School, Isaac Newton Institute, Cambridge (276)
- 11-14 Differential Geometry Workshop, Leeds University (274)
- 11-14 Probability and Statistics Research Students' Conference, University of Wales (277)
- 12-15 Mathematical Methods of Regular Dynamics Workshop, Leeds University (279)
- 17-20 British Mathematical Colloquium, Leeds University (274) (279)
- 25-27 Postgraduate Group Theory and Postgraduate Combinatorics Conferences, Queen Mary & Westfield College, London (279)
- 25-29 British Applied Mathematical Colloquium, UMIST (277)

### MAY 2000

- 5 Edinburgh Mathematical Society Meeting, Stirling University (275)
- 19-20 Hilbert's Problems: Past and Future, 2-day BSHM-LMS Meeting, Oxford (278)
- 28-3 Jun Combinatorics 2000 Conference, Gaeta, Italy (278)

### JUNE 2000

- 2 Edinburgh Mathematical Society Meeting, St Andrews University (275)
- 3-7 Association for Symbolic Logic Annual Meeting, Illinois, USA (278)
- 13-16 AMS Scand 2000 Meeting, Odense, Denmark (278)
- 23 LMS Meeting, London

### JULY 2000

- 3-7 Functional Analysis Meeting, Technical University, Valencia, Spain (265)
- 3-14 Approximation, Complex Analysis & Potential Theory Seminar, Montreal University (276)
- 9 - 22 Geometry & Topology Workshop, Warwick University (277)
- 10-14 3rd European Congress of Mathematics, Barcelona, Spain (272) (279)
- 10-14 Free Surface Flows IUTAM Symposium, Birmingham University (272)
- 10-14 Disordered and Complex Systems Conference, King's College, London (278)
- 10-14 Dynamical Systems ICMS Workshop, Edinburgh (279)
- 17-21 Integrable Systems in Differential Geometry, Tokyo, Japan (275)
- 17-22 International Congress on Mathematical Physics, Imperial College, London (257) (278)
- 23-31 Association for Symbolic Logic European Summer Meeting, Paris, France (278)
- 24-2 Aug New Analytic and Geometric Methods in Inverse Problems, EMS Euro Summer School, ICMS Edinburgh (279)

### AUGUST 2000

- 3-5 Recent Development in the Wave Field and Diffuse Tomographic Inverse Problems EuroConference, ICMS Edinburgh (279)

### SEPTEMBER 2000

- 1-4 Constantin Caratheodory Congress, Evros, Greece (279)
- 4-15 Spatial Structures in Biology Summer School, Taranto, Italy (279)
- 10-17 Geometry of Quiver-Representations and Preprojective Algebras Summer School, Isle of Thorns, Sussex University (275)
- 13-15 Royal Statistical Society International Conference, Reading University (277)
- 15-18 Physical Interpretations of Relativity Theory Meeting, Imperial College London (277)
- 18-23 Differential Geometry International Congress, Bilbao, Spain (275)

### DECEMBER 2000

- 18-20 Mathematics in Signal Processing, Warwick University (279)

### APRIL 2001

- 9-12 British Mathematical Colloquium, Glasgow University

### JULY 2001

- 1-6 British Combinatorial Conference, Sussex University (276)
- 9-13 Stochastic Processes and their Applications Conference, Cambridge (275)

### AUGUST 2001

- 12-19 Homological Conjectures for Finite-Dimensional Algebras Summer School, Nordfjordeid, Norway (275)

### AUGUST 2002

- 20-28 ICM2002, Beijing, China (272)

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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