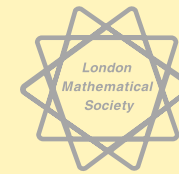


THE LONDON MATHEMATICAL SOCIETY



NEWSLETTER

No. 352 October 2006

Forthcoming Society Meetings

2006

Friday 17 November
AGM, London
Geometric Analysis
R. Hamilton
P. Topping
[page 3]

2007

Friday 20 April
Midlands Regional
Meeting
Loughborough
Y. Colin de Verdière
F. Kirwan
O. Viro

Wednesday 30 May
SW and South Wales
Regional Meeting,
Cardiff

Friday 22 June
London

Thursday 25 October
Northern Regional
Meeting
Sheffield

Friday 23 November
AGM, London
Presidential Address

DAVID CRIGHTON MEDAL 2006

It is with great pleasure that the Councils of the London Mathematical Society and the Institute of Mathematics and its Applications announce the award of the 2006 David Crighton Medal to **Professor Sir Christopher Zeeman, FRS**, Honorary Fellow and formerly Principal of Hertford College, Oxford, in recognition of his long and distinguished service to mathematics and to the mathematical community in all areas – in research, to mathematics in higher education, to the mathematical societies, and in outreach activities with schools and the public.

The David Crighton Award was instituted by the IMA and LMS in memory of Professor David George Crighton, FRS (15 November 1942 – 12 April 2000), a former President of the IMA and President-Designate of the LMS at the time of his death. David was Master of Jesus College, Cambridge, and Professor of Applied Mathematics at Cambridge University; he was a leader in the fields of Fluid Mechanics and Applied Mathematics, influencing their progress nationally and internationally through his contributions both to research

and administration. The Medal is awarded triennially to an eminent mathematician for services *both* to mathematics *and* to the mathematical community.

Sir Christopher Zeeman's research falls into two main periods. His early work was mostly in Piecewise Linear Topology, where he proved a number of major theorems, notably the unknotting of spheres of codimension three in 1960, and the topological Poincaré Conjecture in dimension 5 in 1962. Much of his later work was in dynamical systems and singularity theory (particularly catastrophe theory) following the pioneering ideas of René Thom. He contributed to the theoretical side of the subject, but his most influential work was in applications. In particular, he argued that the qualitative theory of singularities could be applied to the social and biological sciences, which he hoped would lead to more specific quantitative models as the topic developed. His ideas have made their way into many areas of science and mathematics. Modern bifurcation theory has been revolutionised by singularity-theoretic techniques; recently catastrophe theory has been 'rediscovered' in major papers in *Science* and *Nature* on ecology and molecular structure, for example.

He has played important roles in almost all activities of the mathematical community. In 1964 he created the Department of Mathematics and the Mathematics Research Centre at the University of Warwick as its Foundation Professor. His vision and leadership were key to the department's long-term success. As chair of the Mathematics Committee of the Science and Engineering Research Council he created the Nonlinear Systems Initiative which went on to become the Applied Nonlinear Systems Initiative. He created the committee of Heads of Departments of Mathematical Sciences (HoDoMS). He chaired the inaugural Scientific Committee of the Newton Institute that oversaw its creation and chose the programmes during its first ten years. He is a past-President of the London Mathematical Society (1986–88) and received the Senior Whitehead Prize of the Society in 1982.

He was a pioneer in the area of public engagement with mathematics, and has a strong involvement with school mathematics. As early as 1967 he was speaking on the (then) BBC Third Programme on topics such as topol-

ogy. He delivered the 1978 Royal Institution Christmas Lectures on BBC television – the first time in the 150-year history of these lectures, founded by Michael Faraday, that the topic was mathematics. These lectures led Sir Christopher to start the Royal Institution Mathematics Masterclasses for talented young people. He was Gresham Professor of Geometry from 1988 to 1994, delivering an annual series of public lectures. For his work in the public understanding of science he received the prestigious Royal Society Faraday Medal in 1988. He served as the President of the Mathematical Association in 2003/04, a post to which he brought his customary enthusiasm and ideas, ensuring that the power and beauty of mathematics is at the heart of mathematics education, and that the wider public should have inspirational opportunities to experience this for themselves.

The presentation of the David Crighton Medal will take place at a joint meeting of the IMA and the LMS in 2007 on a date to be announced, and will be followed by a lecture from Sir Christopher. Further details will appear when they are available.

LONDON MATHEMATICAL SOCIETY

Annual General Meeting

Friday 17 November 2006

3.15 – 3.30 Annual General Meeting (details page 4)

3.30 – 4.30 Professor R. Hamilton (Columbia)

4.30 – 5.00 Tea

5.00 – 6.00 Dr P. Topping (Warwick)

The meeting will be held in the Chemistry Auditorium, Christopher Ingold Building, University College London, 20 Gordon Street, London WC1. Please note early start.

There are limited funds available to contribute in part to the expenses of members of the Society or research students to attend the meeting. Requests for support, including an estimate of expenses, may be addressed to the Programme Secretary at the Society (web: www.lms.ac.uk; email: grants@lms.ac.uk).

The meeting will be followed by the Annual Dinner. For further details see the announcement in this *Newsletter* (page 4). All enquiries may be addressed to Susan Oakes (tel: 020 7637 3686, email: oakes@lms.ac.uk).

LMS Newsletter

General Editor: Dr D.R.J. Chillingworth (D.R.J.Chillingworth@maths.soton.ac.uk)

Reports Editor: Dr S.A. Huggett (s.huggett@plymouth.ac.uk)

Reviews Editor: Mr A.J.S. Mann (a.mann@gre.ac.uk)

Administrative Editor: Miss S.M. Oakes (oakes@lms.ac.uk)

Editorial office address: London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (tel: 020 7637 3686; fax: 020 7323 3655; email: oakes@lms.ac.uk, web: www.lms.ac.uk)

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Charity registration number: 252660.

LMS 2006 ELECTIONS AND OFFICERS

The ballot papers for the November elections to Council and Nominating Committee are being circulated with this copy of the *Newsletter*. Eleven candidates for Members-at-Large of Council were proposed by the Nominating Committee for seven vacancies.

Three Officers will be changing this year. Martin Bridson has completed his term as a Vice-President, and David Larman has been nominated in his place. Norman Biggs is not standing for re-election as General Secretary and Charles Goldie is nominated in his place. Kenneth Falconer has been nominated to replace Jim Howie as Publications Secretary.

Please note that completed ballot papers must be returned by Thursday 9 November 2006.

A separate form for suggesting names to the Nominating Committee for potential candidates for the 2007 elections is also included; members will also be invited to make nominations directly in the May *Newsletter* next year.

ANNUAL GENERAL MEETING

The Annual General Meeting of the Society will be held at 3.15 pm on Friday 17 November 2006 at the Chemistry Auditorium, University College London, 20 Gordon Street, London WC1. The business shall be:

- (i) elections to Council and Nominating Committee;
- (ii) the adoption of the Annual Report for 2005-06;
- (iii) the report of the Treasurer;
- (iv) appointment of Auditors;
- (v) presentation of certificates to Prize winners.

I hope that as many members as possible will be able to attend.

Peter Cooper
Executive Secretary

ANNUAL DINNER

The Annual Dinner will be held after the Annual General Meeting on Friday 17 November at 7.30 pm at The Bonnington Hotel, London WC1. The cost is £37.00 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 **Monday 13 November**.

EPSRC-FUNDED STUDENTS AND LMS MEMBERSHIP

The LMS is one of several learned societies that are taking part in a scheme with EPSRC to offer 'free' membership to EPSRC-funded students. Under this scheme EPSRC will meet the costs of students' subscriptions (but not journals) for up to five years.

Students will benefit from free membership of the Society and consequently enjoy access to a range of services that will benefit their further professional development. In particular, participation in events (conferences, networks, etc) and keeping more closely in touch with activities in the mathematics community.

The EPSRC hopes this will strengthen links with the students it sponsors and enable it to conduct a long-term evaluation of how its students have developed their careers beyond their first destinations. The LMS and EPSRC will also benefit from closer collaboration.

Further details of the scheme are available on the EPSRC website (www.epsrc.ac.uk). The membership application form for the Society has an additional section to obtain the information required. Email membership@lms.ac.uk for an application form or download one from the LMS website (www.lms.ac.uk/contact/membership.html).

Members are encouraged to make their students aware of, and sign up, for this scheme.

THE LONDON MATHEMATICAL SOCIETY ELECTRONIC ARCHIVE

From January 2007 the *Proceedings*, *Journal* and *Bulletin of the London Mathematical Society* will be moving from Cambridge University Press to Oxford University Press. As a part of this move, the full archive of papers dating back to 1865 is being scanned and will be added to the existing files that currently date back to 1997. Each journal will then have a seamless and complete electronic version, dating from its inception to the latest papers posted as they are published. In total, that amounts to about 200,000 pages making up about 15,000 papers of original research and several thousand other types of articles, such as book reviews, obituaries and the records of proceedings of meetings.

We are currently publishing about 4,300 new pages per year, and these will be added to the archive as they appear. For the first six months of publication, the newly published material is freely available for anyone to search and download the full text of the articles. This is a reverse 'moving wall' policy, and is proving successful in ensuring people have as much access to the journals as possible, while retaining the major source of income to the Society for its other activities.

The journals archive includes papers from all the most important British mathematicians over the last 150 years and in recent years the journals fully reflect the international nature of research with over 70% of recently published articles coming from mathematicians outside of the UK.

Unseen before in electronic form, there are the classic papers of Turing, Hardy, Littlewood and many others that can now be accessed from your desktop. Coming further up to date, the archive will include our recent

highly-cited papers and the *Bulletin* includes our excellent series of survey articles in addition to research papers.

The titles, authors and abstracts (where they exist) will be freely available and searchable but, to view the papers, your university will need to have a fully paid current institutional subscription to the electronic version of the journals. In case you do not have access via your university's subscription, we have dropped the price of purchase for a single article download and any papers in the archive can be bought via pay-per-view. The web pages will be available from January, but add these new homepages to your 'bookmarks' now:

Proceedings of the LMS
(www.plms.oxfordjournals.org)

Journal of the LMS
(www.jlms.oxfordjournals.org)

Bulletin of the LMS
(www.blms.oxfordjournals.org)

We are sorry that the articles will not be available as a part of the membership subscription, in view of the great value of this archive. Please check your librarian is aware of the move to OUP and your library is taking a full subscription, including electronic access, to the journals for 2007. We will be continuing with our reverse 'moving wall' policy described above, so access to the newest material will continue to be freely available.

If you have any questions concerning how to access the journals, please contact the LMS Publisher Susan Hezlet at hezlet@lms.ac.uk.

Here are some highlights:

- G H Hardy and J E Littlewood *Contributions to the arithmetic theory of series*, Proc. London Math. Soc. (2) **11** (1913)
- S Ramanujan *Highly composite numbers*, Proc. London Math. Soc. (2) **14** (1915)

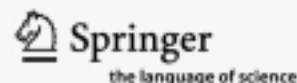
- W V D Hodge *Harmonic integrals associated with algebraic varieties*, Proc. London Math. Soc. (2) **39** (1935)
- Alan M Turing *On computable numbers, with an application to the Entscheidungsproblem*, Proc. London Math. Soc. (2) **40** 1937
- G Higman, B H Neumann, H Neumann *Embedding theorems for groups*, J. London Math. Soc. **24** (1949)
- Klaus F Roth *On certain sets of integers*, J. London Math. Soc. **28** (1953)
- P Hall, G Higman *On the p -length of p -soluble groups and reduction theorems for Burnside's problem* Proc. London Math. Soc. (3) **6** (1956)
- Michael F Atiyah *Vector bundles over an elliptic curve*, Proc. London Math. Soc. (3) **7** (1957)
- Alan Baker *The Diophantine equation $y^2=ax^3+bx^2+cx+d$* , J. London Math. Soc. **43** (1968)
- John H Conway *A group of order 8,315,553,613,086,720,000*, Bull. London Math. Soc. **1** (1969)
- Lipman Bers *Uniformization, moduli, and Kleinian groups*, Bull. London Math. Soc. **4** (1972)
- Peter G Scott *Compact submanifolds of 3-manifolds*, J. London Math. Soc. (2) **7** (1973)
- Jim Eels and Luc Lemaire *A report on harmonic maps*, Bull. London Math. Soc. **11** (1978)
- John H Conway, S. P. Norton *Monstrous moonshine*, Bull. London Math. Soc. **12** (1979)
- Michael F Atiyah *Convexity and commuting Hamiltonians*, Bull. London Math. Soc. **14** (1982)
- Simon Donaldson *Anti self-dual Yang-Mills connections over complex algebraic surfaces and stable vector bundles*, Proc. London Math. Soc. (3) **50** (1985)
- Nigel Hitchin *The self-duality equations on a Riemann surface*, Proc. London Math. Soc. (3) **55** (1987)

WILLIAM PARRY

William Parry, FRS, who was elected a member of the London Mathematical Society on 16 May 1963, died on 20 August, aged 72. He was born in Coventry on 3 July 1934, the sixth of seven children. An undergraduate at University College London, he completed an MSc in Liverpool, and obtained his PhD at Imperial College in 1960 under the supervision of Yael Dowker. After posts at Birmingham University and Sussex University he was appointed as a Reader at Warwick University (in 1968) and promoted to Professor in 1970. In that year he also gave an address at the ICM. He was elected a Fellow of the Royal Society in 1984. After his retirement in 1999 he became an Emeritus Professor.

Bill Parry made many important contributions to Ergodic Theory. He published over 80 original papers and four books (including LMS Lecture Note Series 67, jointly with S. Tuncel). His early work on beta-expansions and his later work on dynamical zeta functions reflected his keen interest in number theory. In between, he made significant contributions to the theory of entropy, nilflows and the classification of subshifts of finite type. In addition, his work on entropy maximizing measures (the 'Parry measure') and interval maps anticipated important developments in dynamical systems. During his career he had 20 PhD students (of whom 17 went on to hold permanent university posts, including 10 in the UK). On his retirement he devoted more time to his other interests, including writing poetry. He is survived by his wife Benita and daughter Rachel.

Mark Pollicott writes: I knew Bill as a teacher, supervisor, co-author, colleague and friend. Professionally, his work was always meticulous, and usually far sighted. Personally, he was quite unpretentious and generous with his time and ideas. He will be greatly missed.



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Classics in Mathematics



Multidimensional Diffusion Processes

D. W. Stroock, Massachusetts Institute of Technology, Cambridge, MA, USA;
S. R. S. Varadhan, New York University, NY, USA

From the reviews ▶ *This book is an excellent presentation of the application of martingale theory to the theory of Markov processes, especially multidimensional diffusions. ...* ▶ *Mathematische Operationsforschung und Statistik*

Reprint of the 1st ed. Berlin Heidelberg New York 1979. 2006. XII, 338 p. Hardcover
ISBN 3-540-28998-4 ▶ € 39,95 | £30,50

Entropy, Large Deviations, and Statistical Mechanics

R. S. Ellis, University of Massachusetts, Amherst, MA, USA

From the reviews ▶ *... Besides the fact that the author's treatment of large deviations is a nice contribution to the literature on the subject, his book has the virtue that it provides a beautifully unified and mathematically appealing account of certain aspects of statistical mechanics. ... Furthermore, he does not make the mistake of assuming that his mathematical audience will be familiar with the physics and has done an admirable job of explaining the necessary physical background.* ▶ *D. Stroock in Mathematical Reviews 1985*

Reprint of the 1st ed. Springer-Verlag New York 1985. 2006. XIV, 364 p. Softcover
ISBN 3-540-29059-1 ▶ € 39,95 | £ 30,50

The Analysis of Linear Partial Differential Operators II Differential Operators with Constant Coefficients

L. Hörmander, University of Lund, Sweden

Vol. II of Lars Hörmander's 4-volume treatise is mainly devoted to operators with constant coefficients.

Reprint of the 1st ed. Berlin Heidelberg New York 1983. 2005. VIII, 392 p. Softcover
ISBN 3-540-22516-1 ▶ € 39,95 | £ 30,50

Complex Manifolds and Deformation of Complex Structures

K. Kodaira

From the reviews ▶ *The author, ... has written a book which will be of service to all who are interested in this by now vast subject. ... This is a book of many virtues: mathematical, historical, and pedagogical. Parts of it could be used for a graduate complex manifolds course* ▶ *J.A. Carlson in Mathematical Reviews, 1987*

Reprint of the 1st ed. Berlin Heidelberg New York 1986. 2005. XIV, 465 p. Softcover
ISBN 3-540-22614-1 ▶ € 39,95 | £30,50

Interacting Particle Systems

T. M. Liggett, University of California, Los Angeles, CA, USA

Reprint of the 1st ed. Berlin Heidelberg New York 1985. 2005. XIX, 496 p. Softcover
ISBN 3-540-22617-6 ▶ € 39,95 | £ 30,50

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UCL Department of Mathematics

Three Professors, Lecturer and Research Fellow

The Department of Mathematics of UCL is currently undergoing a programme of expansion. As part of this expansion the following posts are being advertised:

- a) a Chair in Applied Mathematics,
- b) two Chairs in Pure Mathematics,
- c) a Lectureship in Pure Mathematics,
- d) a Research Fellowship in Pure Mathematics.

The Research Fellowship is for 3 years and all the other posts are permanent. One of the two Pure Professors may be appointed to the prestigious Astor Chair.

Applications are invited from candidates working in any area of pure or applied mathematics. The successful candidates will take up their posts on 1st September 2007.

Professorial salaries will be determined by negotiation. The Lecturer's salary will be in the Lecturer range £29,138 to £39,160 plus London Allowance of £2,497 per annum. The Research Fellow's salary will be on Grade 7, £25,889 to £31,840 plus London Allowance of £2,497 per annum.

Informal enquiries may be addressed to Professor Dmitri Vassiliev, Head of Department, tel: +44 (0)20 7679 2442, email: dima@math.ucl.ac.uk, Professor Frank Smith FRS, Head of Applied Group, tel: +44 (0)20 7679 2837, email: frank@math.ucl.ac.uk, or Professor Keith Ball, Head of Pure Group, tel: +44 (0)20 7679 2843, email: kmb@math.ucl.ac.uk.

Further particulars and application details for the posts can be obtained from the Departmental Administrator, Ms Helen Higgins, tel: +44 (0)20 7679 2838, email: helen@math.ucl.ac.uk, or downloaded from the departmental website <http://www.ucl.ac.uk/Mathematics/>.

We particularly welcome female applicants and those from an ethnic minority, as they are currently under-represented within UCL at these levels.

Closing date: 8th December 2006.

RONALD T. ACKROYD

Ronald Ackroyd, who was elected a member of the London Mathematical Society on 15 June 1950, died on 26 May 2006, aged 85. He held posts at UKAEA and Imperial College London.

IRVING KAPLANSKY

Irving Kaplansky, who was elected an honorary member of the London Mathematical Society in 1987, died on 25 June 2006, aged 89.

Kap was enormously influential in many fields of mathematics, through his papers, his books, and his 55 PhD students. He was the second Director of MSRI, Berkeley, from 1985 to 1992. His first paper appeared in 1939, and after stepping down as MSRI Director, he went back to full-time research mathematics: his recent work, on integral quadratic forms, was published in 2003 when he was 86.

EPSRC MATHEMATICAL SCIENCES PROGRAMME

2007 Senior Research Fellowships

Applications are invited for the 2007 Senior Research Fellowships exercise. Senior Research Fellowships are awarded to outstanding academic scientists and engineers of international repute with a minimum of 10 years post doctoral experience. Fellows will be released from their current teaching and administration loads to devote themselves to research for the period of the award (up to 5 years). The proposed research must be important, timely and should offer opportunities for major scientific advances. Only a few of these most prestigious awards are made each year. Closing date: **4 pm on 1 November 2006.**

Please see a full list of current calls on the EPSRC website: www.epsrc.ac.uk/CallsForProposals/. For details on the Mathematical Sciences Programme see: www.epsrc.ac.uk/ResearchFunding/Programmes/MathematicalSciences.

Funding statistics for 2005-2006

Following the previous publication of data relating to research grant funding coming from EPSRC's Mathematical Sciences Programme, we have compiled a similar set of data for the financial year 2005-6. By making such data available, we hope to establish a greater degree of understanding about funding rates through the Programme. This information is also available to the whole research community via the Grants on the Web panel finder. Remember to read the accompanying notes before interpreting the data as there have been changes to coding and costing methodologies during this period. Details can be found on the Mathematical Sciences area of the EPSRC website.

2007 Advanced Research Fellowships

Applications are invited for the 2007 Advanced Research Fellowships exercise. Advanced Research Fellowships are awarded to outstanding researchers with between 3-10 years of postdoctoral experience. Fellows are expected to devote themselves to research for the period of the award (up to 5 years), with the expectation that they will have established an independent research career of international standing by the end of the award. Approximately 50 of these awards are made each year. Closing date: **4 pm on 9 November 2006.**

Fundamentals of Complexity Science

This call aims to build capacity in the underpinning the theory and generic tools and techniques to address complex systems. While some tools and techniques already exist to cope with complexity in specific application problem domains, the theory required to address these problems is either non-existent or is only useful in limited circumstances. £2.5 million of research funding is available to develop fundamental theory, tools and techniques that will be applicable across a wide range of complex systems. Closing date: **4 pm on 31 October 2006.**

Feasibility Studies in Systems Biology

This is a call for research proposals in the form of speculative feasibility studies in systems biology at the interface between Control & Systems Engineering and the Life Sciences. Proposals must demonstrate the adventure and novelty of the research as well as the direct relevance to systems biology. A total of £2 million has been earmarked for this call by the EPSRC's Engineering and Life Sciences Interface programmes. Closing date: **4 pm on 15 November 2006.**

The numerical analysis/high performance computing interface

The International Reviews of both Mathematics and High Performance Computing highlight the importance of the interface between numerical analysis and high performance computing to both disciplines, yet it is an area in which very few proposals are received in responsive mode. We are looking for feedback from the community to assist in answering the following questions:

- Are there reasons for the lack of applications and can we facilitate this interaction in any way?
- Do you already collaborate with computational scientists or are you a member of any of the Collaborative Computational Projects (CCPs) managed by CCLRC at Daresbury?

Anne Farrow (anne.farrow@epsrc.ac.uk) would welcome to hear the views of the Mathematical Sciences community (and especially the numerical analysts).

Joint EPSRC and POST Postgraduate Initiative 2007

This joint initiative between EPSRC and the Parliamentary Office of Science and Technology (POST) is an opportunity for an EPSRC PhD award holder in their 2nd or 3rd year to undertake a three month placement at POST working on issues of public policy interest. During their time at Parliament, EPSRC/POST Fellows will work on a policy topic grounded in science and technology, focussing on informing parliamentarians on the Information Technology implications of the issues arising. The award holder offered the placement will receive a three month fully funded extension to their PhD award. There is one placement available this year. The placement will start at an agreed date after 5 March 2007. The closing date for this initiative is **16 October 2006.**

tarians on the Information Technology implications of the issues arising. The award holder offered the placement will receive a three month fully funded extension to their PhD award. There is one placement available this year. The placement will start at an agreed date after 5 March 2007. The closing date for this initiative is **16 October 2006.**

Senior Media Fellowships

The Public Engagement Programme invites applications for Senior Media Fellowships. These enable leading researchers to devote time to develop a higher media profile. The aim is to advance public engagement with the physical sciences, mathematics and engineering via the broadcast and written media. Senior Media Fellowships are intended to be used for active development of media opportunities (not research, scholarship or teaching). Closing date: **4 pm on 8 November 2006.**



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HISTORY OF MATHEMATICS SERIES
A CO-PUBLISHING PARTNERSHIP

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A Translation and Study of
a Hellenistic Treatise in Spherical Astronomy



J. L. Berggren, *Simon Fraser University, Burnaby, BC, Canada,*
and **R. S. D. Thomas**, *University of Manitoba, Winnipeg, MB, Canada*

This translation of *Euclid's Phaenomena* includes extensive commentary that enhances the context and value of this important historical work. The text includes 18 propositions set out in geometrical style about how arcs of the zodiacal circle move across the sky. Readers get a fascinating look at how Euclid advanced knowledge in astronomy without the tools of trigonometry and spherical geometry.


History of Mathematics, Volume 29; 2006; 132 pages; Softcover; ISBN-10: 0-8218-4072-X; ISBN-13: 978-0-8218-4072-6; List: US\$29; All AMS members US\$23; Order code HMATH/29

Also in the History of Mathematics Series...

Essays in the History of Lie Groups and Algebraic Groups
Armand Borel, *Institute for Advanced Study, Princeton, NJ*
History of Mathematics, Volume 21; 2001; 184 pages; Hardcover; ISBN-10: 0-8218-0288-7; ISBN-13: 978-0-8218-0288-5; List: US\$41; All AMS members US\$33; Order code HMATH/21

A History of Analysis
Hans Niels Jahnke, *University of Essen, Germany, Editor*
History of Mathematics, Volume 24; 2003; 422 pages; Hardcover; ISBN-10: 0-8218-2623-9; ISBN-13: 978-0-8218-2623-2; List: US\$89; All AMS members US\$71; Order code HMATH/24

Ramanujan: Essays and Surveys
Bruce C. Berndt, *University of Illinois, Urbana-Champaign, IL,* and **Robert A. Rankin**, *University of Glasgow, Scotland,*
Editors
History of Mathematics, Volume 22; 2001; 347 pages; Hardcover; ISBN-10: 0-8218-2624-7; ISBN-13: 978-0-8218-2624-9; List: US\$83; All AMS members US\$66; Order code HMATH/22



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PRIFYSGOL ABERTAWE

59th British Mathematical Colloquium
16-19 April 2007

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Huai-Dong Cao (Lehigh University)
Alain Connes (Collège de France and IHÉS)
Daniel Stroock (MIT)
Henry McKean (Courant Institute)

Special Sessions on
Algebraic Topology,
Harmonic Analysis,
RAE (Ken Brown)
Public Lecture: Caroline Series

Morning speakers include
Jan Bergstra
Imre Leader
Tom Leinster
Jens Marklof
Peter Mörters
Zhongmin Qian
Michael Rathjen
Alexander Sobolev
Dmitri Vassiliev
Katrin Wendland

Satellite Meeting on Stochastic Processes 19-21 April

Supported by the London Mathematical Society,
the Edinburgh Mathematical Society, EPSRC, BP

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INSTITUT DES HAUTES ÉTUDES SCIENTIFIQUES

L'Institut des Hautes Études Scientifiques, located in Bures-sur-Yvette (France), welcomes up to 250 mathematicians and theoretical physicists each year from all over the world for various periods going from two to three weeks up to one to two years.

Created in 1958, IHÉS is an international research institute, registered as a Foundation in the Public Interest since 1980, whose purpose is to support and develop theoretical research in the mathematical sciences, physics and, more recently, in molecular biology. IHÉS is financed by different institutions, such as: the French Research Ministry, several European research agencies among which the Engineering and Physical Sciences Research Council (EPSRC), the European Commission, the US National Science Foundation, and also some private foundations and corporations. The EPSRC has now been supporting IHÉS for a number of years. In doing so, its aim is to foster closer links between British and French mathematical research centres. British mathematicians and theoretical physicists are invited to apply to IHÉS for visits (for more information, consult the website www.ihes.fr). They can use their stay to work with researchers from other research groups in the Paris area.

Director:	Jean-Pierre Bourguignon
Permanent Professors:	Thibault Damour, Mikhael Gromov, Maxim Kontsevich, Laurent Lafforgue, Nikita Nekrasov
Honorary Professor:	David Ruelle,
Léon Motchane Chair:	Alain Connes
Louis Michel Chairs:	Michael Douglas, Jürg Fröhlich, Samson Shatashvili
Long term CNRS visitors:	Christophe Breuil, Ofer Gabber, Dirk Kreimer, Christophe Soulé
External Members of the Scientific Committee:	Curtis Callan, Michael Green, Stanislas Leibler, George Papanicolaou, Marc Mézard, Gerd Faltings

WILLIAM HODGE FELLOWSHIPS 2007/2008

In 2000 the EPSRC committee reviewing IHÉS suggested that the EPSRC and IHÉS offer each year two one-year fellowships bearing the name of Sir William Hodge, the eminent British mathematician. The fellowships enable outstanding young mathematicians and theoretical physicists to spend time at IHÉS. At the next review in 2005, it was suggested that each fellow be encouraged to have a UK-based mentor.

Conditions for application: PhD in the Mathematical Sciences or Theoretical Physics obtained in 2005, 2006 or in early 2007. One of the two grants awarded will go to an applicant who is a UK citizen or has spent at least the preceding nine months at a UK academic institute, e.g. to get his/her PhD.

Selection of applicants: Applications will be reviewed and selection made based on the sole criterion of excellence in research by IHÉS Scientific Committee on 16 December 2006. The Committee consists of the Permanent Professors, the Director, and the external members whose list can be found above.

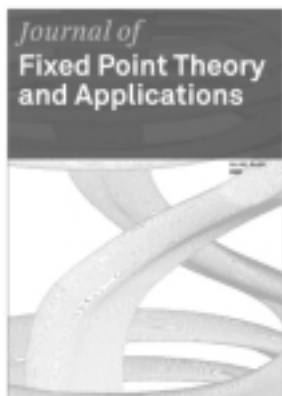
Fellowship starting date: Autumn 2007.

How to apply: An application file should be sent through the IHÉS website (www.ihes.fr) and should include: a covering letter, a CV, a publication list, a research project, two or three letters of recommendation, and a proposal for a UK mentor.

Deadline for applications: 4 December 2006.

Information: IHÉS, 35, route de Chartres, F-91440 Bures-sur-Yvette, France (tel: +33 1 6092 6605, fax: +33 1 6092 6609, email: hodge@ihes.fr, web: www.ihes.fr).

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IMU GENERAL ASSEMBLY

Every four years, just before each International Congress of Mathematicians, the General Assembly of the International Mathematical Union has a weekend meeting. The GA is the governing body of IMU, and this meeting is to review the last four years, to elect the Executive Committee (among others), to agree the financial statements, budget, and dues, and to pass resolutions guiding the work of the EC for the next four years.

This year the GA was held in Santiago de Compostela, Spain, from 19-20 August, just before the ICM in Madrid. The LMS delegation consisted of John Toland (who was promptly elected to the GA's Resolutions Committee), Tim Gowers, Jim Howie, Stephen Huggett and Elmer Rees.

Review of IMU activities

The review of the activities of the IMU started with a very interesting presentation by Herb Clemens on the Commission on Development and Exchanges (CDE) and Developing Countries Strategy Group (DCSG), whose web pages are at: www.ictp.it/~cde and <http://users.ictp.it/~dcsq/>.

With a small budget, the CDE has been able to give only limited support to conferences and research travel, but the 2002 GA initiated the setting up of the DCSG to expand these activities and find new sources of funding. This has been successful, with donors including the Abel Memorial Fund, the LMS, the AMS, the US National Committee for Mathematics, and the Nuffield Trust and Leverhulme Foundation. These funds have been used in a variety of ways, to support activities such as:

- CIMPA Cambodia project
- African Mathematics Millennium Science Initiative
- ICMI African Mathematics Education
- Clearinghouse of African Mathematics
- ICTP Ramanujan Prize (annual)

- Chinese Mathematical Society 75th Anniversary Conference

Most recently, there has been a huge effort to help bring mathematicians from developing countries to the ICM: there were 1,100 applicants for 208 awards.

Herb Clemens concluded his report by proposing that the CDE and DCSG now merge to form a new Commission for Developing Countries.

Next, Ragni Piene gave a brief report on the electronic newsletter of the IMU, called IMU-Net. This is very useful, but could do with being more widely known: see www.mathunion.org/Publications/Newsletter/.

Various members of the IMU Committee on Electronic Information and Communication (CEIC) described their work. There have been some failures and some successes, but it was clear that overall this is an important part of the work of the IMU: see www.ceic.math.ca.

Financial report, budget, and dues

The IMU Secretary, Phillip Griffiths, presented the financial reports for the years 2002-2005, and proposed the budget for 2007-2010, which the GA agreed. He also made a proposal for a significant increase in the dues (especially for Mathematical Societies from rich countries): this was also agreed.

Statutes

A number of changes were proposed to the statutes and the procedures for elections. Some of these were significant, and stimulated lively discussion. One which was not controversial was a proposal for a new category of membership of the IMU: Associate Membership, designed to help countries not currently in the Union to join, with the intention that within a few years they would become full members.

After the 2002 GA the EC adopted an *ad hoc* process for preparing the 2007-2010 slates for the elections to the various IMU committees. This process involved setting up a Nominating Committee and was intended

as a dry run for the process to be adopted formally in future. In general the 2006 GA was very pleased with what had been done, but there was a considerable debate over the effect of the proposed new arrangements for the International Commission on Mathematical Instruction, with many delegates fearing that this would be the beginning of a split between IMU and ICMI. However, the proposal was eventually agreed.

Elections

The slates themselves were then agreed: these were for the IMU Executive Committee, the Commission on Development and Exchanges, the International Commission on the History of Mathematics, and the International Commission on Mathematical Instruction. The results of the elections can be found at: www.mathunion.org/Organization/GA/2006/Slides/IMU-Leadership.pdf.

In particular, from the UK, Peter Neumann was elected to the International Commission on the History of Mathematics, and Celia Hoyles to the International Commission on Mathematical Instruction.

The members of the new EC are:

President: László Lovász (Hungary)

Secretary: Martin Grötschel (Germany)

Vice Presidents: Zhi-Ming Ma (China), Claudio Procesi (Italy)

Members at Large: M. Salah Baouendi (USA), Manuel de León (Spain), Ragni Piene (Norway), Cheryl E. Praeger (Australia), Victor A. Vassiliev (Russia), Marcelo Viana (Brazil)

Ex Officio: John M. Ball, Past President (United Kingdom)

For more information, and links to the web pages of these people, see: www.mathunion.org/Organization/EC/2007-2010.html.

ICM2006

The ICM 2006 Program Committee Report was given by its Chair, Noga Alon. This report provoked a passionate discussion over the apparent lack of geographical balance, in spite of the new guidelines adopted for

future Program Committees. One difficulty is defining what it means for a given mathematician to come from a given country.

Resolutions

There was also some quite intense discussion of some of the resolutions. That on the free movement of scientists was not controversial, although it was improved by some wording changes. As noted above, the GA had already indicated its real concern that the IMU and the ICMI may drift apart, and a resolution on increased collaboration with ICMI was discussed next. It proved difficult to reach agreement until the resolution was rather substantially redrafted.

Finally, there was concern over the resolution proposing that the EC explore stable sources of funding for the secretariat for the IMU. Some delegations, including ours, were rather reluctant to put the IMU on to a slippery slope leading to a permanent office, and again the discussion was passionate! Eventually a modified resolution was agreed, asking the EC to come back to the 2010 GA with proposals (note the s).

ICM2010

The Executive Committee recommended that ICM2010 be held in Hyderabad (19-27 August), and following a presentation by the Indian Local Organizing Committee this was agreed by acclaim. (The 2010 GA will be in Bangalore.)

Membership

Finally, the GA was very happy to agree to the applications from the Czech Republic and Poland that they should each move up a group: see www.mathunion.org/Members/groups.html.

At the end of the meeting the GA thanked the local organizers and the Executive Committee, especially those who were retiring from office. In particular, the incoming President László Lovász thanked John Ball for all of his work during his Presidency.

S.A. Huggett
Chair, International Affairs Committee

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POSTCARD FROM MADRID

The ICM2006 organisers certainly saved on postage by handing the full ICM *Proceedings* to participants as they registered – all 6kg, in a handy but arm-stretching carrier bag. At least it would allow anyone to spend the entire ten days under a shady tree in Madrid's delightful Retiro park reading the talks rather than attending them. Participants arriving for the Opening Ceremony were unexpectedly greeted by long queues outside the *Palacio Municipal de Congresos*: all bags and ICM backpacks were X-rayed as the Ceremony was to be presided over by King Juan Carlos himself. There were separate queues for Amphitheatre A (where the action was to be) and B (with video link) but no clues as to this code, so by the time we had (a) found the end of a queue and then (b) discovered it was the wrong one for our ticket and walked around the building to find the end of the other queue, we had had a good chance to greet many old friends and colleagues. It was another week before we bumped into some of them again in the more random medium of the Congress itself.

His Majesty did a proficient job of presid-

ing – but then, what else do kings do nowadays? The video link camera was aimed at speakers rather than the screen above the heads of the platform party, on which the A audience could see translations of Spanish speeches as well as a short video about the mathematics of the newly-adopted Borromean rings logo of the IMU: the B participants were deprived of these diversions. However, the platform party in A could not properly see the screen either, so those of us in B at least had the consolation of watching even His Majesty having to crane his neck for a view.



Newsletter readers can find elsewhere the details of the Fields Medallists and other Prize winners, and the now much reported non-acceptance of his Medal and absence from the ICM by the publicity-shy Grigori Perelman. The stories behind the scenes would, we are told, fill several volumes: it cannot be long before these start to appear. At least it gets the general public interested in the Poincaré Conjecture.



King Juan Carlos presiding at the Opening Ceremony

The Opening Ceremony was followed by an excellent buffet lunch with efficient drinks service and trays of delicious nibbles on what was essentially the roof of Amphitheatre A but nevertheless still indoors. The *Palacio* was a building within a building, having the many smaller lecture rooms around the outer shell. The connectivity was curiously complicated, and at the end of the ten days many of us had still not quite figured out all the topology.

Lest colleagues have some notion of the ICM as an excuse for a Spanish holiday, we should emphasise that the Programme ran from 9:00 am to 8:00 pm on most days (including Saturday), with not much space in the middle. You can't go to everything, however, and few participants will have resisted the temptations of trips to El Escorial monastery (which holds the *Codex Vigilanus* containing the earliest known (976) written record of a new-fangled Indian number system and notation which is reported as being rather successful), or to Toledo, Avila or Segovia. Then there was Madrid itself, of course: warm and comfortable in the evenings, not the stifling heat that guide-books led us to expect. With restaurants just beginning to open up around 9:00 pm it could be a challenge to make it for next day's first Plenary Lecture.

The LMS held a joint meeting with its Spanish counterpart RSME which will be reported on elsewhere; it is enough to say here that the two talks (Robert Bryant on closed geodesics and Godfried Toussaint on musical rhythm) were both excellent examples of how to keep an audience engaged, informed and entertained: would that there could be more talks like these. As if this were not enough, there followed a congenial reception hosted by the LMS, with yet more of the ICM high-quality food and drinks.

This service came into its own once again at the ICM Party, held in the Botanical Gardens at the Universidad Complutense across the city. Here was seen some 5* grade dancing (can PhD students count it generic skills training?) as well as more questionable dancefloor skills displayed

by individuals not all unconnected with the LMS. However, readers can be reassured that the LMS contingent left reasonably early in order to be in good shape for start of business the next day.

While mathematics was going on inside the *Palacio* on laptop, OHP and table napkin, there was also some going on outside with pneumatic drills and heavy lifting equipment: the Japanese sculptor Keizo Ushio was splitting a granite solid torus along a pair of 1:1 curves. It took all week, and the finished work was finally displayed before the Congress ended. Mathematically-inspired works of this artist occupy prominent public positions in cities worldwide, although alas none yet in the UK.



So what about the lectures at the ICM? The standard of those Plenary and Invited Lectures that the *Newsletter* attended was on the whole very high. The Short Communications were more of a mixed bag, but were generally carefully prepared and delivered. Overall, what do we gain from attending an ICM? Some new insight into technical matters for our own research, perhaps, but mainly an exciting view of mathematics as an ongoing worldwide enterprise, together with (we hope) inspiration from those speakers who opened our eyes to new questions and new links and ways of thinking. For details see the *Proceedings*, of course. Like many others, I mailed my copy back home: it was worth the cost not to have to lug it to the airport.

David Chillingworth

ICM2006 AWARDS

The Fields Medals, Nevanlinna Prize and the Gauss Prize were awarded on 22 August 2006 during the opening ceremony of the International Congress of Mathematicians in Madrid.

Fields Medals

- Andrei Okounkov for his contributions bridging probability, representation theory and algebraic geometry.
- Grigori Perelman for his contributions to geometry and his revolutionary insights into the analytical and geometric structure of the Ricci flow.
- Terence Tao for his contributions to partial differential equations, combinatorics, harmonic analysis and additive number theory.
- Wendelin Werner for his contributions to the development of stochastic Loewner evolution, the geometry of two-dimensional Brownian motion, and conformal field theory.

Nevanlinna Prize for mathematics in the Information Society

Jon Kleinberg's work has brought theoretical insights to bear on important practical questions that have become central to understanding and managing our increasingly networked world. He has worked in a wide range of areas, from network analysis and routing, to data mining, to comparative genomics and protein structure analysis. In addition to making fundamental contributions to research, Kleinberg has thought deeply about the impact of technology in social, economic, and political spheres.

Carl Friedrich Gauss Prize for applications of mathematics

The first laureate of the newly-created Gauss Prize is the Japanese mathematician Kiyoshi Itô aged 90. His theoretical work in stochastic analysis that has had such an enormous

impact shows how it can be a long and complex route from real-world phenomena to their abstract mathematical description and back again to applications.

ICIAM PRIZES

Professor Ian Sloan, President of the International Council for Industrial and Applied Mathematics (ICIAM), has announced the winners of the five ICIAM prizes. The prize winners are:

Pioneer Prize Ingrid Daubechies (Princeton) and Heinz Engl (Linz) – joint winners
The Pioneer Prize, established for pioneering work introducing applied mathematical methods and scientific computing techniques to an industrial problem area or a new scientific field of applications. The prize commemorates the spirit and impact of the American pioneers. It was created on the initiative of ICIAM member society SIAM, and was first awarded in 1999. The Pioneer Prize is currently funded by SIAM.

Collatz Prize Felix Otto (Bonn)

The Collatz Prize, established to provide international recognition to individual scientists under 42 years of age for outstanding work on industrial and applied mathematics. It was created on the initiative of ICIAM member society GAMM, and was first awarded in 1999. The Collatz Prize is currently funded by GAMM.

Lagrange Prize Joseph Keller (Stanford)

The Lagrange Prize, established to provide international recognition to individual mathematicians who have made an exceptional contribution to applied mathematics throughout their careers. It was created on the initiative of ICIAM member society SMAI, and first awarded in 1999. The Lagrange Prize is currently funded by the three member societies SMAI, SEMA and SIMAI.

Maxwell Prize Peter Deufilhard (ZIB, Berlin)
The Maxwell Prize, established to provide international recognition to a mathematician who has demonstrated originality in applied mathematics. It was created on the initiative of ICIAM member society IMA (with the support of the J.C. Maxwell Society), and first awarded in 1999. The Maxwell Prize is currently funded by IMA.

Su Buchin Prize Gilbert Strang (MIT)

The Su Buchin Prize, established to provide international recognition of an outstanding contribution by an individual in the application of mathematics to emerging economies and human development, in particular at the economic and cultural level in developing countries. It was created on the initiative of ICIAM member society CSIAM, and is being awarded for the first time. The Su Buchin Prize is currently funded by CSIAM.

Prize citations and presentation

For the six ICIAM prize citations, and other information about the prize winners, refer to the ICIAM website (www.iciam.org). The prizes will be awarded at the Opening Ceremony of the International Congress for Industrial and Applied Mathematics, to be held in Zürich from July 16 – 20 July 2007 (www.iciam07.ch). The four-yearly ICIAM Congress is a major international celebration of mathematics in action, and the main event in the applied mathematical calendar. The International Council for Industrial and Applied Mathematics (ICIAM) is a world body which brings together all the national associations of professional mathematicians concerned with applications.

ADAMS PRIZE

The Chairman of the Adjudicators for the Adams Prize invites applications. The Prize will be awarded this year for research achievement in the field of Statistics, interpreted in the broadest sense.

The prize is open to any person who, on 31 October 2006, will hold an appointment in the UK, either in a university or in some other institution; and who is under 40 (in exceptional circumstances the Adjudicators may relax this age limit). The value of the prize is expected to be approximately £13,000; of which one third is awarded to the prize-winner on announcement of the prize, one third is provided to the prize-winner's institution (for research expenses of the prize-winner) and one third is awarded to the prize-winner on acceptance for publication in an internationally recognised journal of a substantial (normally at least 25 printed pages) original article, of which the prize-winner is an author, surveying a significant part of the winner's field.

Applications (seven copies), comprising a CV, a list of publications, the work or works (published or unpublished) to be considered, and a brief non-technical summary of the most significant new results of these works (designed for mathematicians not working in the subject area) should be sent to: The Secretary of the Adams Prize Adjudicators, Faculty Office, Centre for Mathematical Sciences, Wilberforce Road, Cambridge, CB3 0WA (enquiries may be emailed to: faculty@maths.cam.ac.uk). The deadline for receipt of applications is **31 October 2006**.



CALL FOR NOMINATIONS FOR TEN EMS PRIZES

Principal guidelines

Any European mathematician who has not reached his/her 35th birthday on 30 June 2008, and who has not previously received the prize, is eligible for an EMS Prize at Fifth European Congress of Mathematics. A total of 10 prizes will be awarded. The maximum age may be increased by up to three years in the case of an individual with a 'broken career pattern'. Mathematicians are defined to be 'European' if they are of European nationality or their normal place of work is within Europe. 'Europe' is defined to be the union of any country or part of a country which is geographically within Europe or that has a corporate member of the EMS based in that country. Prizes are to be awarded for work published before 31 December 2007.

Nominations of the award

The Prize Committee is responsible for solicitation and evaluation of nominations. Nominations can be made by anyone, including members of the Prize Committee and candidates themselves. It is the responsibility of the nominator to provide all relevant information to the Prize Committee, including a résumé and documentation. The nomination for each award must be accompanied by a written justification and a citation of about 100 words that can be read at the award ceremony. The prizes cannot be shared.

Description of the award

The award comprises a certificate including the citation and a cash prize of €5,000.

Award presentation

The prizes will be presented at the Fifth European Congress of Mathematics by the President of the European Mathematical Society. The recipients will be invited to present their work at the congress (see www.5ecm.nl).

Prize Fund

The money for the Prize Fund is offered by the Foundation *Compositio Mathematica*.

Deadline for submission

Nominations for the prize must reach the chairman of the Prize Committee at the following address, not later than **1 November 2007**: 5ECM Prize Committee, Professor R. Tijdeman, Mathematical Institute, Leiden University, Postbus 9512, 2300 RA Leiden, The Netherlands (email: tijdeman@math.leidenuniv.nl, fax: +31715277101, phone: +31715277138).

REPRESENTATION THEORY AND PHYSICS

A conference on representation theory and physics will be held at City University, London, from 11-15 December. The meeting is intended to bring together researchers in representation theory, computational statistical mechanics, integrable quantum field theory, and string theory, to consider recent progress at the interface between these disciplines. Invited lecturers include:

- Philippe Di Francesco (Saclay)
- Benjamin Doyon (Oxford)
- Stephen Doty (Chicago)
- Iain Gordon (Edinburgh)
- Richard Green (Colorado)
- Chris Hull (Imperial)
- Christian Korff (Glasgow)
- Jean Michel Maillet (Lyon)
- Tetsuji Miwa (Kyoto)
- Pavel Pyatov (Dubna)
- Vladimir Rittenberg (Bonn)
- Hubert Saleur (Saclay)
- Anatoly Vershik (St Petersburg)

Anyone interested is welcome. Further information is available from the conference webpage: www.staff.city.ac.uk/~ra359/MEETINGS/conf06.html.

MATHEMATICS EDUCATION IN A GLOBAL COMMUNITY

The ninth international conference of The Mathematics Education into the 21st Century Project on *Mathematics Education in a Global Community* will take place from 7-12 September 2007 at the University of North Carolina, Charlotte, USA.

The Mathematics Education into the 21st Century Project has just completed its eighth successful international conference in Malaysia, following conferences in Egypt, Jordan, Poland, Australia, Sicily, Czech Republic and Poland. The Chairman of the Local Organising Committee is Associate Professor David Pugalee. Plenary speakers will include Professor Azlan Zanzali and Douglas Butler. The conference will open with a welcoming reception on Friday 7 September and conclude after lunch on 12 September. Papers are invited on all innovative aspects of Mathematics Education. There will be an additional social programme for accompanying persons. For further conference details email arogerson@inetia.pl or visit <http://math.unipa.it/~grim/convegna.htm>.

THEORETICAL FLUID DYNAMICS IN THE 21ST CENTURY

A meeting in honour of Professor J.T. Stuart, FRS

A special research conference is to be held at Imperial College London on 15-16 December to celebrate the contributions both to fluid dynamics and to the Department of Mathematics at Imperial College of Professor J.T. Stuart.

The theme of the conference is to survey the role played by theoretical fluid dynamics over the last few decades and to speculate on how the subject will evolve in decades to come. The conference will feature invited plenary lectures, a series of shorter presenta-

tions and a poster session. The conference should be of interest to anyone interested in theoretical, computational or experimental fluid dynamics. Some financial assistance is available to support the attendance by UK graduate students. Confirmed plenary speakers include:

- T. Akylas (MIT)
- H. Aref (Virginia Tech / DTU)
- L. E. Fraenkel (Bath)
- R. Kelly (UCLA)
- R. Kerswell (Bristol)
- S. Lele (Stanford)
- J. Liu (Brown)
- T. Mullin (Manchester)
- N. Peake (Cambridge)
- N. Sandham (Southampton)

Anybody interested in attending should contact the organizers D. Crowdy (d.crowdy@imperial.ac.uk) or X. Wu (x.wu@imperial.ac.uk). For more details: www.imperial.ac.uk/mathematics/stuartmeeting.

ALGEBRAIC STRUCTURES AND INTEGRABLE SYSTEMS

There will be a workshop at the University of Edinburgh on *Algebraic Structures and Integrable Systems* on Friday 27 – Saturday 28 October. The speakers are:

- Y. Berest (Cornell)
- G. Heckman (Nijmegen)
- E.M. Opdam (Amsterdam)
- A.P. Veselov (Loughborough)

There will also be a pair of introductory lectures for post-graduate students on *What is a root system?* and *What is an integrable system?*

This is a joint meeting of the Scheme 3 funded groups ARTIN and Classical and Quantum Integrability. There are limited funds available to contribute to the travel expenses of research students to attend the workshop. Further details can be found at www.maths.gla.ac.uk/~iabs/LMSworkshops/workshopArtin.htm.

The workshop is supported by grants from the LMS, the Edinburgh Mathematical Society and the Glasgow Mathematical Journal Trust.

VISIT OF PROFESSOR P. D'ANCONA

Professor Piero D'Ancona (University of Rome, La Sapienza) will be visiting the UK from 11-25 October. He will give lectures at:

- London Analysis Seminar, 12 October
- Imperial College London, 13 October
- University of Edinburgh, 16 October
- University of Bristol, 17 October

Professor D'Ancona is an internationally leading expert on nonlinear PDEs and weakly hyperbolic equations. His visit is supported by an LMS Scheme 2 grant. For further information contact Michael Ruzhansky (m.ruzhansky@imperial.ac.uk).

VISIT OF PROFESSOR D. ANOSOV

Professor D. Anosov (Steklov Mathematical Institute and Moscow State University) will visit the UK from 13 October to 3 November. His visit is supported by an LMS Scheme 2 grant. Professor Anosov is renowned for his contributions to the theory of hyperbolic dynamical systems. Professor Anosov's itinerary is as follows:

- Cambridge: 13-18 October. Lecture on 16 October, contact Yurii Suhov (Y.M.Suhov@statslab.cam.ac.uk) for details.
- Warwick: 18-23 October. Lecture on 20 October at 2 pm, contact Mark Pollicott (mpollic@maths.warwick.ac.uk) for details.
- Liverpool: 23 October – 3 November. Lecture on 27 October at 4 pm, contact Toby Hall (t.hall@liv.ac.uk) for details.

VISIT OF PROFESSOR A.T.M. LAU

Professor A.T.M. Lau (University of Alberta) will be visiting the UK from 20 November to 12 December, supported by an LMS Scheme 2 grant. He will visit the University of Leeds from 20 November – 7 December to work

with Professor H.G. Dales and Dr D. Strauss. He will subsequently visit Dr N. Laustsen at the University of Lancaster from 8-9 December and Professor C-H. Chu at Queen Mary College from 9-12 December. He will give the following seminar talks:

- Oxford: Tuesday 28 November
- Leeds: Tuesday 5 December
- Lancaster: Friday 8 December
- Queen Mary College: Monday 11 December

For further information contact Dona Strauss (D.Strauss@hull.ac.uk).

ATHENA SURVEY OF SCIENCE ENGINEERING AND TECHNOLOGY

ASSET 2006, the third Athena Survey of Science Engineering and Technology, runs for six weeks from 5 September to 20 October. Athena's purpose in running the survey is to provide a firm basis from which to understand and address the barriers to women's progression in scientific careers. The survey questions, based on those in the 2003 and 2004 surveys, address the areas identified by Athena as key to the differences between men's and women's progression through and enjoyment of a career in science and engineering.

The survey is open to all male and female UK based scientists, engineers and medics, whether in industry, public or private sector research, research and development organisations, in education including higher and further education, the NHS or other public sector employment. Scientists working in corporate policy and management functions, and in operational, manufacturing, field and service posts, as well as in teaching and research are included. Understanding the career experiences, perceptions and ambitions of all these groups is important.

A report on the headline findings from the survey will be published in Spring 2007. Comparisons will be made across the main SET

employment sectors and the main SET disciplines. These will focus on the areas which the survey's sponsors and supporters will influence, which employers can control, and where change can make a difference. Further information on ASSET 2006 is available the Athena website www.athenaproject.org.uk. By supporting the survey you will be eligible to receive a full copy of the report and any sub-reports you would like looking at your sector or industry.

ASSET 2006 is made possible by core funding from the UK Resource Centre for Women in SET, support from the University of East Anglia Survey Office, Bristol On Line Surveys, and the Science Council. The Athena Project is based at and supported by The Royal Society. Athena's other supporters include BP, Equality Challenge Unit, Institute of Physics, Opportunity Now, Pfizer, Royal Academy of Engineering, Royal Society of Chemistry and The Wellcome Trust.

ISAAC NEWTON INSTITUTE Programme Announcement

**Mathematics and Physics of Anderson
Localization: 50 Years After
14 July – 19 December 2008**

In his seminal paper *Absence of diffusion in certain random lattices* (1958) Philip W. Anderson discovered one of the most striking quantum interference phenomena: particle localization due to disorder. Cited in 1977 for the Nobel Prize in physics, that paper was fundamental for many subsequent developments in condensed matter theory. In particular, in the last 25 years the phenomenon of localization proved to be crucial for the understanding of the Quantum Hall Effect, mesoscopic fluctuations in small conductors as well as some aspects of quantum chaotic behaviour.

Random Schrödinger operators are an area of very active research in mathematical physics and mathematics. Here the main effort is to clarify the nature of the underlying spectrum. In particular, it has been proved that in dimension one all states are localized, and in any

dimension the random Schrödinger operator has dense point spectrum for large enough disorder. Some open mathematical problems of major importance are: the question of existence of absolutely continuous spectrum, the expected spectral phase transition (Anderson delocalization), as well as clarification of the nature of the spectrum at the critical point (presumably singular continuous).

The goal of the programme is to bring together the world leaders in spectral theory of random Schrödinger operators and theoretical physicists successfully working on the problem of Anderson localization. Among the topics that will be addressed during the programme are: The nature of critical phenomena associated with localization-delocalization transitions; The existence and statistical properties of extended states for $D > 2$ and the behaviour in the critical dimension $D = 2$; Rigorous version of super symmetric methods and of the nonlinear s -model techniques; The localization-delocalization phenomena associated with the Integer Quantum Hall effect; Rigorous mathematical understanding of the relation between magnetic Schrödinger operators and network models, and the connection with quantum percolation; Localization in the presence of a random magnetic field; Behaviour of products of random matrices and associated Lyapunov exponents; Localization and delocalization in disordered systems characterised by non-selfadjoint operators; Dynamical localization in Quantum Chaotic systems; Localization in systems with a periodic potential, as well as in models with correlated or long-ranged disorder; Localization in systems with nonlinearities, and localization-delocalization phenomena in disordered systems of interacting quantum particles.

The organisers are: Y.V. Fyodorov (Nottingham), I. Goldshied (Queen Mary, London), T. Spencer (Princeton), M.R. Zirnbauer (Cologne). Further information can be found at www.newton.cam.ac.uk/programmes/MPA/.

RECORDS OF PROCEEDINGS AT MEETINGS

REGIONAL ORDINARY MEETING

held on *Monday 3 July 2006* at the University of Leeds. About 75 members and visitors were present for all or part of the meeting.

The meeting began at 3:00 pm, with the President, Professor J.F. TOLAND, FRS, FRSE, in the Chair.

Eight members signed the book and were admitted to the Society.

Dr N.J. LAUSTSEN introduced a lecture given by Uffe Haagerup on *Random matrices and operator algebras*.

After tea Professor J.R. PARTINGTON introduced a lecture given by Nigel Kalton on *An application of classical Banach space theory to partial differential equations*.

Professor Toland expressed the thanks of the Society to the local organiser and the speakers for putting on such an excellent meeting.

A dinner was then held in the Great Woodhouse Room, University House.

LMS REGIONAL MEETING AND WORKSHOP 2006

A Regional Meeting of the London Mathematical Society was held on Monday 3 July 2006 at the University of Leeds. Following the opening of the meeting by the President, Professor John Toland, several new members were admitted to the Society. The Vice Chancellor, Professor Michael Arthur, then warmly welcomed participants and speakers to the University and commented on local plans for a significant visitor centre at Leeds. There followed lectures by Uffe Haagerup of Odense University and Nigel Kalton of the University of Missouri.

Uffe Haagerup was introduced by Niels Laustsen who outlined Uffe's many extraordinary achievements in operator algebra. Uffe's

talk on Random Matrices and Operator Algebras began with a brief chronology of random matrices and their emergence in Statistics (Wishart, from 1929), Nuclear Physics (Wigner, Dyson, Mehta, from 1955), Analytic Number Theory (Montgomery conjecture on the roots of the Riemann zeta function), Banach Spaces and Concentration Phenomena (Gluskin, Milman, Maurey, Gowers, from 1981) and Operator Algebra and Free Probability (Voiculescu, Ge, from 1991). While it may be that a primary motivation for Voiculescu's development of free probability was von Neumann's longstanding (and still open) free group factor isomorphism problem, it has become clear that free probability techniques have widespread applications in operator algebra. The recent progress of Haagerup, Schulz and

Thorbjørnsen and others on the existence of invariant subspaces in II_1 factors and applications to extension semigroups and K-theory, for example, is particularly spectacular. Such themes were presented by Uffe and expanded on in the Workshop on Functional Analysis which followed the regional meeting.

Nigel Kalton's influence in the realm of Banach space theory has been similarly profound. His talk, introduced by Jonathan Partington, on an application of classical Banach space theory to partial differential equations traced an intriguing path from the maximal regularity of sectorial operators, via UMD spaces, block basic sequences and unconditional bases, to the Generalised Brezis Conjecture. Nigel also outlined Functional Calculus methods for sectorial operators, a theme which was taken further in the workshop by both Nigel and Lutz Weiss.

A particularly stimulating reception and dinner at the Great Woodhouse Room, University House, provided an effective transition from the Regional Meeting to the Workshop in Functional Analysis which followed the next morning. The Workshop, organised principally by Professor Garth Dales, included detailed developments of a number of related themes in free probability, operator algebra, Banach space methods, invariant subspaces, and functional calculus. All the speakers fully confirmed their renown in exposition and the talks were very well received.

Tom Ransford's elegant lectures on shift-invariant subspaces ascended from the familiarities of Hardy space to the extraordinary subtleties of the iterated log functions in Dirichlet space. In his talks on free semigroup algebras Ken Davidson surveyed the parallel world of freely noncommuting shifts and their invariant subspaces and operator algebras. Alexander Ya. Helemskii outlined how tensor products can be used to give an elegant, matrix-free approach to the theory of operator spaces. Thomas Schlumprecht spoke

on the problem of approximating elements in a Banach space by linear combinations of elements from a given subset (eg, a basis) with all coefficients being integral multiples of a fixed positive number, and showed how the existence of such approximations is expressed in the geometry of the Banach space. Michel Crouzeix introduced a simple inequality, with a deep proof, relating the operator norm of a polynomial in a square matrix to the supremum norm of the polynomial over the numerical range of the matrix. In spite of its innocent appearance, this inequality had applications in several different areas of mathematics, including operator theory and differential equations.

The eighteen talks of the workshop were spread over three and a half days – a low density format which allowed plenty of time for much interaction and reflection between the 75 or so participants, which included a heartening number of graduate students.

Stephen Power
Lancaster University

INVERSE PROBLEMS

The British Inverse Problems Society is holding a one-day workshop hosted by the School of Computer Science, University of Cardiff on Wednesday 1 November. The meeting will take place in Room C/2.07 in the School of Computer Science, Queen's Buildings, 5 The Parade, Roath, Cardiff CF24 3AA. The programme is as follows:

- M. Jais (Cardiff) to be announced
- S. Kurylev (Loughborough) *Rigidity of broken geodesics and inverse problems*
- R. Davies (Cardiff) *Inverse Problems in materials characterisation*
- S. Chandler-Wilde (Reading) to be announced

For further details contact the organiser Professor Malcolm Brown (Malcolm.Brown@cs.cardiff.ac.uk) or visit the website www.maths.manchester.ac.uk/~bl/ukipws/pr20061.html.

REVIEWS

Once Upon Einstein by Thibault Damour. Trans. Eric Novak. Wellesley, Massachusetts: A.K. Peters, Ltd, 2006, pp 199, £20.00, ISBN 1-56881-289-2.

There are different ways of bringing the ideas of a dead mathematician or scientist to life. One is to place them against an historical background sufficiently vivid that the human characters act out the ideas. Another is to try to put them in terms and imagery that readers without a technical background can understand. Thibault Damour uses both in an effort to pay homage to Einstein's intellectual accomplishment. The result is a continuation of the dialogue of recent decades about what part of twentieth-century physics Einstein created, but the attempt to simplify the presentation of his contributions does have an equal degree of success.

Damour is himself a physicist and French. One of the battlegrounds of the history of physics has been how far Poincaré deserves

credit for either the special or general theory of relativity. It would not have been surprising to find Damour standing up for Poincaré's contributions, but his loyalty to Einstein transcends his attachment to his fellow countryman. In particular, while he admits that one can find the equations of special relativity in Poincaré, he quotes the surrounding text to indicate that there is no sense of the conceptual leap that Einstein had to make in order to distinguish his work from that of ether-theorists. Subsequently, when general relativity is the topic, Damour claims that Poincaré had some of the ideas behind the theory, but did not make it the quantitative theory that Einstein worked hard to create. It might seem as though the cards are stacked against Poincaré in such an analysis, but Damour's admiration for Einstein is based on the latter's ability to take leaps that could be expressed in mathematical terms.

The vividness of historical background is brought to the page by looking at a particular setting for the start of each chapter. For example, the last chapter, which looks at the unified field theory, sets the stage by recreating a particular lecture Einstein gave at Princeton shortly before his death and looking at some of the physicists in the audience influenced by it. Similarly, the chapters on quantum mechanics open with the first Solvay Conference and with Heisenberg's coming to lecture in Berlin. An interesting feature of the book is that, after the period during which Einstein is shown contributing actively to physical theory, the next generation of physicists find inspiration for particular aspects of their own work in the influence of specific remarks or attitudes of Einstein. In this respect, Einstein is contrasted with Niels Bohr, the influence of whose programme of complementarity is not described in flattering terms.

As far as exposition of Einstein's ideas is concerned, Damour tries to be faithful to the

spirit of the original, while using language and images of his own. For example, he uses the language of elasticity to explain general relativity (after a quick introduction to Hooke). This follows after illustrating the deformation of space-time by means of veal in aspic. The juxtaposition of these two approaches suggests the kind of challenge which Damour has difficulty surmounting. The 'veal in aspic' model is concrete, but it's a little hard to stretch the model to get much of the force of Einstein's ideas across. The notion of general relativity as a sort of elasticity does have mathematical bite, but Damour scarcely gets into the mathematical content in the text. He has a certain number of footnotes for the 'aficionados' [sic], but I think the reader with less background is going to be puzzled by reference to 'the most general linear relation ... which can exist between mathematical objects of the same type'.

Outside the technical exposition, Damour pursues many of the connections of Einstein's thought with broader society. For example, he points to the scholarship on Proust revealing the influence of relativity on *In Search of Lost Time* (perhaps still better known as *Remembrance of Things Past*). The title of the English version of Damour's book brings up images from fairy tales, fittingly with a French original of *Si Einstein m'était conté*. In general, the translation reveals only sparingly its having originated in a different language.

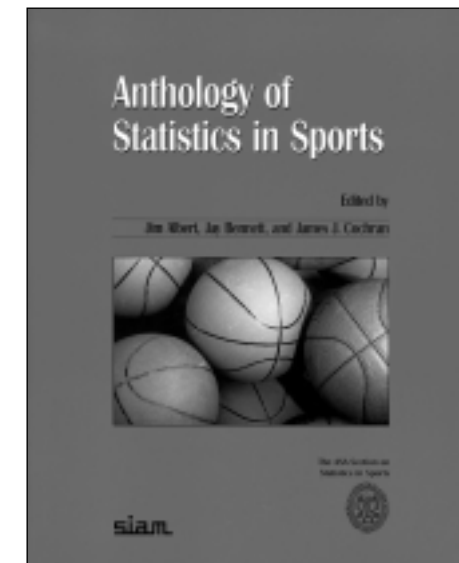
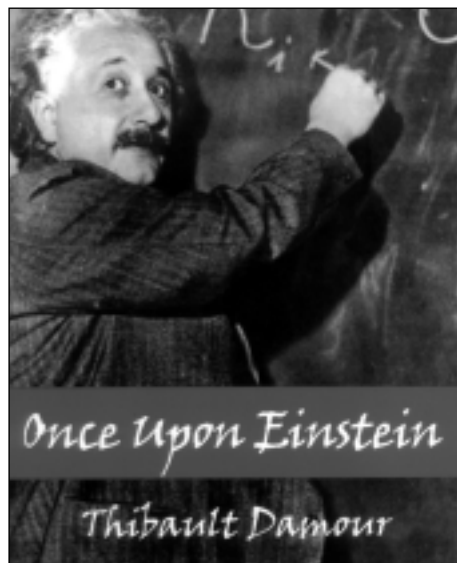
Damour's book is a serious effort on the centenary of Einstein's *annus mirabilis* to examine his intellectual accomplishment, its sources and its influence. He brings the discussion up to the present by looking at the recent scholarship on Gödel's solution to Einstein's field equations by Pallo Yourgrau. Einstein's creative years from 1905 to 1924 receive detailed examination, in which the author's consultation of primary and secondary materials makes his argument more con-

vincing. The presentation is not aimed primarily at mathematicians, who might chafe at oversimplifications in the exposition. The portrayal of Einstein that emerges, however, does not shirk historical complexities and reminds the reader that piecing together intellectual antecedents can be hard work even for those with technical competence.

Thomas Drucker
University of Wisconsin-Whitewater

Anthology of Statistics in Sports edited by Jim Albert, Jay Bennett and James J Cochrane, SIAM, 2005, pp 322, US\$65, ISBN 0-898715-87-3

Next June, the IMA will hold its first international conference on sport. Topics include measures of performance, tournament design and scheduling, competitive strategy, models for match outcomes, even what maths can contribute to the rules of sports. Some UK journals have devoted sections and special issues to sport, and the benefits of



using a sports background to motivate young people to study our subject are often touted.

I believe that a mathematical way of thinking can enhance understanding and enjoyment of many sports, for spectators as well as participants. Sport generates copious data, so it is not surprising that statisticians have sought to show how their ideas can be useful. The worldwide acceptance of the Duckworth-Lewis method in cricket is an excellent example.

This book contains reprints of 36 articles, all published in journals based in the USA, and reflecting the sports priorities of that country. Fifteen of them originally appeared in *Chance*, a magazine written to be accessible to students, ten in the more demanding *Journal of the American Statistical Association*. The editors have chosen well: the field attracts a lot of dross, happily absent.

Two initial chapters sketch the rise in interest in applying statistical notions to sport, and outline how sport has been successfully used in teaching. The articles are then grouped into six sections, each introduced by an excellent brief overview of the ideas to be discussed. The first four sections cover (American) football, baseball, basketball and ice hockey, the other two roam more widely, with golf the next most popular item, followed by soccer and athletics.

Teachers of statistics will find many ideas here: applications of standard distributions; hypothesis tests; estimation; regression; experimental design; data transformations. For other branches of mathematics, we have to search harder. The relation between discrete and continuous models could be illustrated by the use of Brownian motion to model a score difference: this works very well in the high-scoring game of basketball, but also surprisingly well in baseball. And when the predictions of a rank order in a league table are compared with each other, or the actual outcome, different l_p metrics could be compared.

In summary, this book is overwhelmingly statistical, and offers a handy compilation of the best articles published within the sources selected.

John Haigh
University of Sussex

THE HALL-HIGMAN THEOREMS Fifty years on

In 1956 the London Mathematical Society published a seminal paper by Philip Hall and Graham Higman entitled 'On the p -length of p -soluble groups and reduction theorems for Burnside's problem'. To mark its (approximately) fiftieth anniversary, a conference will be held at the Mathematical Institute, Oxford on 5-6 January 2007.

The underlying principle of the paper, namely that of applying representation theory to study the internal structure of a group, remains at the heart of the subject today, and the theme of this conference will be to mark what has been achieved and to look at current trends across a breadth of interests within group theory where this principle underpins ongoing research. The speakers will be:

- David Benson (Aberdeen)
- Paul Flavell (Birmingham)
- Radha Kessar (Aberdeen)
- Nikolay Nikolov (Oxford)
- Raphael Rouquier (Leeds/Oxford)
- Bernd Stellmacher (Kiel)
- John Thompson (Cambridge/Florida)
- Efim Zelmanov (UC San Diego)

The conference is supported by an LMS conference grant, and graduate students attending UK universities are invited to apply for financial support. The conference is also supported by University College, Oxford, and participants will be accommodated there.

There will be a conference website www.maths.ox.ac.uk/arg/conferences/HH50.html. Further information can be obtained also by e-mail to HH50@maths.ox.ac.uk.



Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Postdoctoral positions in the Department of Mathematics for the academic year 2007-2008

The Department of Mathematics at ETH Zürich invites applications for several postdoctoral positions beginning on **October 1, 2007**. The positions are awarded for a period of one or two years. Applicants must have completed the PhD in Mathematics by the start of the appointment and within the last 5 years. They must show strong promise in research. ETH Zürich specifically encourages female candidates to apply.

To be assured of full consideration, applications should be received by **November 30, 2006**; the selection process will begin shortly thereafter. Later applications are nevertheless welcome and will be considered for any positions remaining open at the time they are received.

To apply, send a cover letter together with

- a curriculum vitae specifying citizenship, year of birth, academic degrees with institution and year awarded and, for the doctoral degree, the dissertation title, year of graduation and the name of the dissertation supervisor.
- a list of publications
- a survey of past research activities and a description of current research interests

Three letters of recommendation supporting the application should be sent directly to us.

Applications and letters of recommendation should be sent to Search Committee, Department of Mathematics, ETZ Zentrum/HG G33.3, CH-8092 Zürich, Switzerland (E-mail: deptsecr@math.ethz.ch; Fax: +41446321085)



Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Heinz Hopf Lectureships

The Department of Mathematics of the ETH Zurich invites applications for several Heinz Hopf lectureships beginning 1 October 2007 or earlier. The positions are awarded for a period of 3 years, with the possibility of an extension by 1 year.

Duties of Heinz Hopf lecturers include research and teaching in mathematics. Together with the other members of the department, the new lecturers will be responsible for undergraduate and graduate courses for students of mathematics, natural sciences, and engineering. The moderate teaching load leaves ample room for further professional development. Courses at Master level may be taught in English.

Applicants should have proven excellence in research in any area of mathematics and possess potential for further outstanding achievements. Some research and teaching experience after the Ph. D. is usually expected.

Applications with curriculum vitae and a list of publications should be submitted to Prof. D. Salamon, chair@math.ethz.ch, Department of Mathematics, ETH Zentrum, 8092 Zurich, Switzerland, by **November 30th, 2006**. Later applications can be considered for remaining positions. In addition, three letters of recommendation supporting the application should be sent directly to us. ETH Zurich specifically encourages female candidates to apply.

EPSRC

Analysis on Graphs and its Applications



LMS/EPSRC Short Course

Gregynog Hall, University of Wales, 10-15 January 2007

Organiser: Professor B.M. Brown

The course will provide an introduction to the topics listed below.

The course lecturers are:

- Professor T. Sunada (Meiji, Japan)
Spectral geometry of discrete Laplacians
- Professors P. Kuchment (Texas A & M, USA) and P. Exner (Prague, Czech Republic)
Quantum graphs and their applications
- Professor A. Teplyaev (Connecticut, USA)
Analysis on fractals

Two guest lectures will be given by:

- Professor A. Lubotzky (Hebrew University, Israel) – provisional
Ramanujan Graphs and related topics
- Professor U. Smilansky (Weizmann Institute of Science, Israel)
Spectral statistics

The course is intended both as an introduction to the above topics focused on research students in mathematics and the physical sciences, and as a set of introductory lectures to the six month programme *Analysis on Graphs and its Applications* to be held in 2007 at the Isaac Newton Institute Cambridge.

Postdocs and young scientists are welcome to attend.

The registration fee to attend is £100. The accommodation costs for all UK-based research students are covered by EPSRC. Participants must pay their own travel costs. EPSRC-supported students can expect that their registration fees and travel costs will be met by their departments from the EPSRC Doctoral Training Account. Postdocs and non-UK students will be required to pay their own subsistence costs and the registration fee (£420 in total). There may be some funds available to help with the costs of those required to pay the full amount – further information will be available after the deadline for applications.

Application forms may be obtained from Isabelle Robinson at the London Mathematical Society (email: robinson@lms.ac.uk) or an online from the LMS website: www.lms.ac.uk/activities/research_meet_com/short_course/33_poster.html.

Numbers will be limited and those interested are advised to make an early application. The closing date for applications is **Friday 11 November 2006**.

All applicants will be contacted by the London Mathematical Society approximately one week after this deadline; we will not be able to give information about individual applications before then. Please do not send any money until we ask.

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RUSSIAN ACADEMY of SCIENCES
V.A. Steklov Institute of Mathematics
St. Petersburg Department

27, Fontanka St. Petersburg
191023 Russia
Phone: +7(812) 312 4058
Fax: +7(812) 310 5377

email: admin@pdmi.ras.ru
URL: www.pdmi.ras.ru

РОССИЙСКАЯ АКАДЕМИЯ НАУК
Санкт-Петербургское отделение
Математического института
имени В.А.Стеклова

191023 Санкт-Петербург
наб. р.Фонтанок, 27
тел. (812) 312 4058
факс (812) 310 5377



Euler International Mathematical Institute
Международный Математический
институт имени Л. Эйлера

e-mail: admin@euler.pdmi.ras.ru URL: www.pdmi.ras.ru/EIMI
phone/fax: +7 (812) 234 05 74 Pesochnaya nab. 10 St. Petersburg 197022

Russian Academy of Sciences, St Petersburg Scientific Centre of RAS, St Petersburg Department of the V.A. Steklov Mathematical Institute and Euler International Mathematical Institute, St Petersburg State University and the Euler Foundation are organizing a special congress on the occasion of the 300th anniversary of Leonhard Euler's birth. The Congress is supported by the Government of Russia and the local authorities of St Petersburg.

The Congress will include the Euler Festival (10-12 June) and a series of satellite conferences (see below for a tentative list). The main event (10-12 June) will comprise a celebration meeting on 10 June, and several invited talks related to Euler's tremendous scientific activity. The list of invited speakers will be announced in the near future.

The Congress will be held at the St Petersburg Department of the V.A. Steklov Mathematical Institute and the Euler International Mathematical Institute in St Petersburg, Russia.

We ask our colleagues who are interested in attending the event to inform us about this. Preliminary registrations should be made at: www.pdmi.ras.ru/EIMI/Euler300/form1.html or by email: euler300@imi.ras.ru.

The organizing committee

L.D. Faddeev, E.A. Tropp, I.A. Ibragimov, S.V. Kislyakov, G.A. Leonov,
Yu.V. Matiyasevich, Yu.D. Burago, V.A. Gritsenko, G.A. Seregin, V.N. Tolstykh,
A.M. Vershik, S.V. Vostokov.

Preliminary list of conferences

- L. Euler and modern combinatorics (A.M. Vershik) 1-7 June
- Euler equations and related topics (G.A. Seregin) 7-9 June
- **Euler Festival** 10-12 June
- Arithmetic Geometry (S.V. Vostokov) till 17 June
- A conference in Geometry (Yu.D. Burago) 18-23 June
- 17th Summer St Petersburg Conference in Analysis (N.K. Nikolski, S.V. Kislyakov) 25-30 June
- Modular forms and moduli spaces (V.A. Gritsenko) 3-7 July

CALENDAR OF EVENTS

This calendar lists Society meetings and other events publicised 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 on the Society's website (www.lms.ac.uk/meetings/calendar.html).

OCTOBER 2006

- 3** Supporting Postgraduates who Teach Mathematics & Statistics Workshop, Birmingham (351)
- 4** The 18th Century: Crossing Bridges, Gresham College London (351)
- 13** Edinburgh Mathematical Society Meeting, Edinburgh (350)
- 19** Supporting Postgraduates who Teach Mathematics & Statistics Workshop, Leeds (351)
- 20** UK TeX Users Group, De Morgan House, London (348)
- 23** Supporting Postgraduates who Teach Mathematics & Statistics Workshop, London (351)
- 25** Supporting Postgraduates who Teach Mathematics & Statistics Workshop, Glasgow (351)
- 25** The 19th Century: Revolution or Evolution?, Gresham College London (351)
- 27-28** Algebraic Structures and Integrable Systems Workshop, Edinburgh (352)
- 30-3 Nov** Recent Advances in Monte Carlo Based Inference Workshop, INI, Cambridge (348)

NOVEMBER 2006

- 1** Inverse Problems Workshop, Cardiff (352)
- 1** Supporting Postgraduates who Teach Mathematics & Statistics Workshop, Bristol (351)
- 6-10** Rankin Lectures 2006, Glasgow (351)
- 10** Edinburgh Mathematical Society AGM, Strathclyde (350)

- 15** The 20th Century: Chaos, Codes and Colouring, Gresham College London (351)
- 17 LMS AGM, London**
- 20-24** Stochastic Computation Workshop, INI, Cambridge (348)
- 25** Belfast Functional Analysis Day, Queen's University Belfast (351)
- 27-22 Dec** Geophysical Fluid Dynamics and Scalar Transport in the Tropics, Singapore (348)

DECEMBER 2006

- 8** Edinburgh Mathematical Society Meeting, Heriot-Watt (350)
- 11-15** Representation Theory and Physics Conference, City University, London (352)
- 15-16** Theoretical Fluid Dynamics in the 21st Century Conference, IC London (352)
- 18-22** Trends in Noncommutative Geometry, INI, Cambridge (349)

JANUARY 2007

- 5-6** The Hall-Higman Theorems Conference, Oxford (352)
- 8-31 Mar** Interface Problems and Applications in Fluid Dynamics, Singapore (351)
- 10-15** Analysis on Graphs & its Applications LMS/EPSC Short Course, Gregynog Hall, Wales (352)
- 19** Edinburgh Mathematical Society Meeting, Edinburgh (350)

FEBRUARY 2007

- 16** Edinburgh Mathematical Society Meeting, Edinburgh (350)

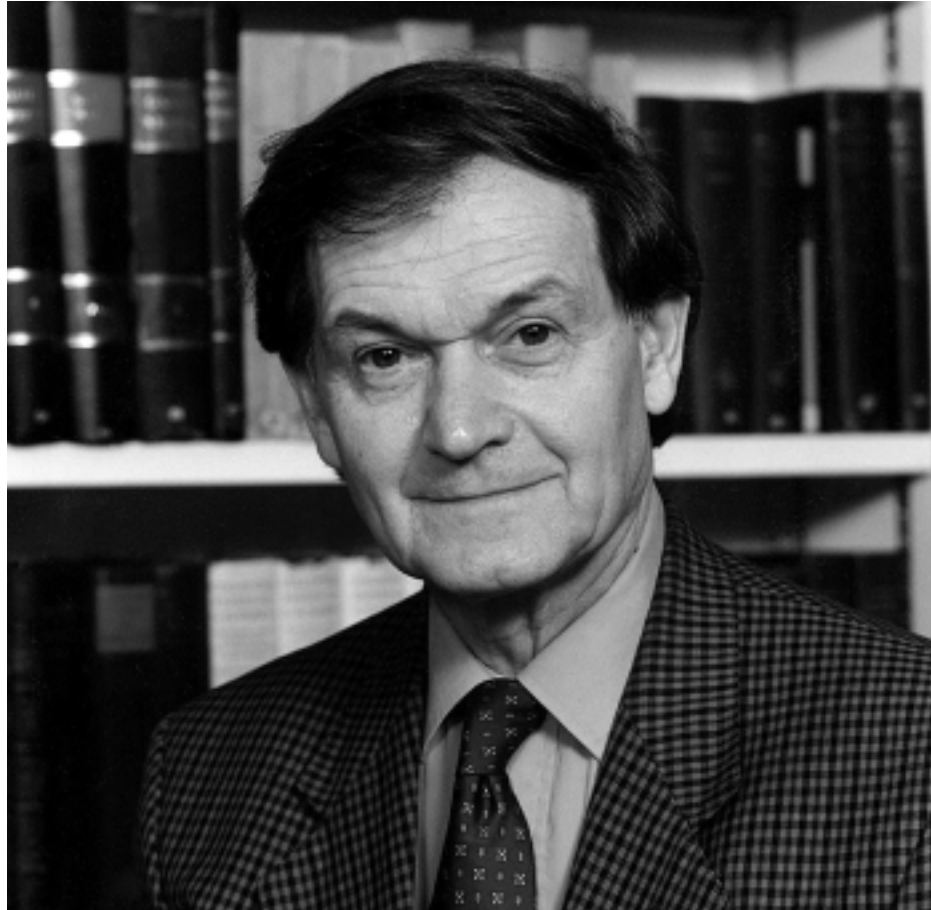
MARCH 2007

- 16** Edinburgh Mathematical Society Meeting, Dundee (350)
- 26-31** Geometric Flows and Related Topics Symposium Workshop, Warwick, (350)

APRIL 2007

- 16-19** BMC, Swansea (352)
- 20 LMS Midlands Regional Meeting, Loughborough**

**ROGER PENROSE
DE MORGAN MEDALLIST
2004**



Short citation: The De Morgan Medal is awarded to Professor Sir Roger Penrose, OM, FRS of the University of Oxford for his wide and original contributions to mathematical physics. His deep work on General Relativity has been a major factor in our understanding

of black holes. His development of Twistor Theory has produced a beautiful and productive approach to the classical equations of mathematical physics. His tilings of the plane underlie the newly discovered quasi-crystals.