THE LONDON MATHEMATICAL SOCIETY

NEWSLETTER

No. 375 November 2008

Society Meetings and Events

2008

Friday 21 November
AGM, London
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12–13 December
Joint Meeting with the Edinburgh Mathematical Society Edinburgh [*page* XX]

2009

Wednesday 14 January
Northern Regional Meeting, Manchester

Friday 27 February
Mary Cartwright Lecture, London

31 March – 4 April
LMS Invited Lectures Edinburgh

Friday 3 July
London

Wednesday 15 July
SW & South Wales Regional Meeting Southampton

Wednesday 16 September
Midlands Regional Meeting, Leicester

THE NEW MATHEMATICAL SOCIETY AND MEMBERS ABROAD

The LMS has 30% of its members based outside the UK. This remarkably high number has never been trumpeted by the Society, but could be. The Royal Statistical Society proclaims with pride that 25% of its members are outside the UK, and a fortiori, the LMS could do so too. The high proportion reflects the international nature of our subject. Much more than other disciplines, and more even than other sciences, mathematics crosses international boundaries with ease.

Should the LMS's overseas members engage with the present consultation over the New Mathematical Society, and vote if the vote ensues? The natural initial assumption might be "No: leave it to the 'home' members'", but that would be an error. In short: the Society needs your votes, there are so many of you. Less perfunctorily: the LMS belongs to you as much as it does to the members based in the UK; you have a right to participate and vote and should exercise it. Although the consultation is about the creation of a new UK-wide society, the international profile that the new society might aspire to, as compared to those which the LMS and IMA currently have, is a matter of importance, which members outside the UK are likely to be well informed about.

Personal membership in the LMS comes only in the forms Member, Associate Member and Honorary Member. If you join the Society through one of the reciprocity arrangements with a national society abroad you are a Member, just like any other, with full voting rights. You, like the UK-based Members, are the LMS. It is your Society, and its vigour and success are important for mathematics.

I write this piece on a visit to the Mathematics Department of the Technical University of Dresden. The location has as good a claim as any to be the middle of Europe, with the rest of Germany to the north and west, Prague nearby to the south, and Poland a short distance east. There is nevertheless much interest in UK mathematics and in the LMS. It seemed natural from this location to count the LMS members abroad, as listed in the 2007 Handbook, which apparently no-one had done before. The largest contingent is in the USA (240), followed by Germany (61), Canada (49), Australia (33), Republic of Ireland (31), and France (25).

In all, 66 countries are represented. Besides those who are British and working abroad, and those who have formerly worked in the UK, there are many who appear to have no such special reason for belonging. The proportion of promi-

nent, well-known names appears high, at least to this observer. Participation in its affairs, purely out of interest, by distinguished mathematicians from all over the world is surely something for the LMS to celebrate, and their contribution to the current debate and, if it occurs, the ensuing vote, is unequivocally welcomed.

Charles Goldie
General Secretary

SUSAN OAKES

Announcement of Retirement

With considerable personal regret, which many members will certainly share, I am writing to inform you that Susan Oakes has decided to retire on 31 December this year. The attractions of Dorset and her interests outside the LMS have led her to this decision, no doubt influenced by her experiences of moving to part time work last year.

Susan has been a central figure in the Society for 27 years, since January 1981, when the Society was based in a single room in Burlington House. She has been intimately involved in its development and the expansion of its activities during her time with the Society. She has been to, indeed organized, almost every Society Meeting since her arrival, all with exemplary efficiency, and may well know more British mathematicians than any of us. She has seen and coped with enormous changes, particularly relating to the move to De Morgan House, and has provided the continuity that has been so important during this period of transition.

I am pleased to say that Susan will continue to undertake occasional projects for the Society, primarily related to membership and Society activities, working from home. Nonetheless, her central role will inevitably mean that her departure will leave a large hole in our staffing structure, our corporate knowledge and our membership relations. The Officers of the Society are working on plans for our future staffing to provide the continuity of our activities and support services at the same high level.

We will all miss Susan greatly, and the Society's Officers are now considering how to indicate our gratitude to her for her loyal service.

Brian Davies
President

LMS Newsletter

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MEETINGS ON THE PROPOSALS FOR A NEW UNIFIED MATHEMATICS SOCIETY

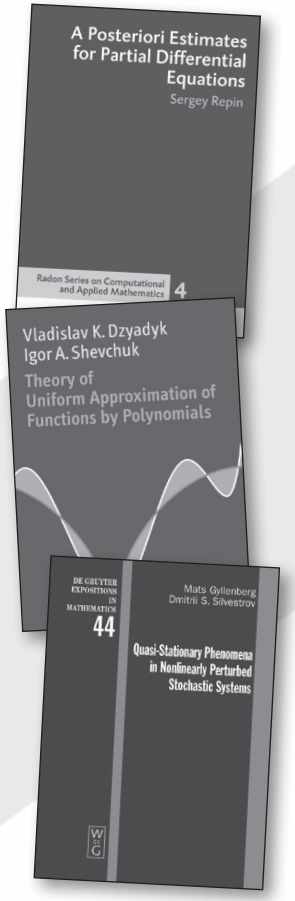
As you will know, meetings are being arranged around the country at which the Presidents of the LMS and IMA will outline the proposals to create a new unified mathematics society. A list of the meetings being arranged for November is given below. If you have not yet been able to attend one of the meetings, then please try to attend one of the remaining meetings, to hear about the proposals, to take part in the discussion, to ask questions and to contribute to the consultation.

Please pass on this information to your colleagues. Further details about these meetings and other aspects of the consultation are available at www.newmathsoc.org.uk.

Glasgow	Wednesday 5 November, late morning/lunchtime (check www.newmathsoc.org.uk for details).
Edinburgh	Lecture Theatre A, James Clerk Maxwell Building, Wednesday 5 November. Discussion will start at 4.00 pm; refreshments will be available from 5.00 pm.
St Andrews	Lecture Theatre A, Mathematics Institute, Thursday 6 November. There will be a talk *Spectral theory of a class of large finite directed graphs* by Professor Brian Davies at 4.15 pm. Discussion will start at 5.00 pm; a reception will follow from 6.00 pm.
Aberdeen	Friday 7 November, morning (check www.newmathsoc.org.uk for details).
Cambridge	Tuesday 11 November, late morning/lunchtime (check www.newmathsoc.org.uk for details).
East Anglia	Room S1.20, School of Mathematics, Tuesday 11 November. There will be a talk *Homogenization of simple periodic and near periodic composite materials* by Professor David Abrahams in Room S3.05 at 4.00 pm; discussion will start at 4.45 pm in room S1.20.
Sussex	Wednesday 12 November, afternoon (check www.newmathsoc.org.uk for details).
London	Imperial College, Thursday 13 November, late morning/lunchtime (check www.newmathsoc.org.uk for details).
Oxford	Tuesday 18 November, late morning/lunchtime (check www.newmathsoc.org.uk for details).
Southampton	Maths 5A, Mathematics Building (Building 54), Tuesday 18 November. Discussion will start at 4.00 pm; refreshments will be available from 5.00 pm in the Staff Reading Room (room 4005).

DE GRUYTER

Just published



Sergey Repin

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Mats Gyllenberg / Dmitrii S. Silvestrov

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ANNUAL GENERAL MEETING

The Annual General Meeting of the Society will be held at 3.15 pm on Friday 21 November 2008 at University College London. The business shall be:

(i) elections to Council and Nominating Committee

(ii) the adoption of the Annual Report for 2007–08

(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

LMS ANNUAL DINNER

The Annual Dinner will be held after the Annual General Meeting at 7.30 pm on Friday 21 November at the Hotel Russell, London WC1. The cost is £42.00 per person, and members may book places for guests. The booking form, enclosed with the October *Newsletter*, should be returned together with payment to the London Mathematical Society office by **Monday 17 November.**

LONDON MATHEMATICAL SOCIETY

ANNUAL GENERAL MEETING

University College London

Friday 21 November 2008

3.15–3.30	**Annual General Meeting**
3.30–4.30	**Graeme Segal FRS** (Oxford) *Noncommutative geometry and quantum field theory*
4.30–5.00	**Tea**
5.00–6.00	**Michael Green FRS** (Cambridge) 2007 Naylor lecture *Some dualities of string theory and quantum gravity*

The meeting will be held at University College London. The AGM will include the presentation of certificates to the 2008 LMS prize winners.

There are 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).

Enquiries may be addressed to Susan Oakes at the London Mathematical Society.

PROGRAMME COMMITTEE

New grant scheme: Postgraduate research conferences

From this new academic year we have a new grant scheme especially for postgraduate research conferences, organised by and for research students, to be held in the United Kingdom. The organiser of the conference will be a postgraduate student (or students), but applications should be made by a member of the academic staff of the student's Department, although the Society will continue to acknowledge that the student was the organiser. If the applicant is not a member of the Society then the application must be countersigned by a member who is prepared to support the application. The overall upper limit for grants is £4,000.

Usually, a conference of this type is focused on a particular branch of mathematics, and consists of two or three lectures given by established mathematicians and many short talks (or posters) given by the other participants, the research students themselves . It is expected that normally there will be between 25 and 50 participants, and that they would all give a presentation.

Modification to Scheme 3: Support of joint research groups

From this new academic year it is possible for one of the three nodes of a Scheme 3 joint research group to be overseas.

For both of these schemes, and indeed for all our schemes, please check the LMS website for the full guidelines and application forms. Enquiries about applications can be addressed to the Programme Secretary, Stephen Huggett (tel: 01752 586869) or Sylvia Daly (tel: 020 7291 9971, Wednesday–Friday), who will be pleased to discuss proposals informally with potential applicants and give advice on the submission of an application.

YOUNG BRITISH AND RUSSIAN MATHEMATICIANS

The London Mathematical Society and the Russian Academy of Sciences (RAS) invite proposals for visits under the *Young British and Russian Mathematicians* scheme. Each year, under this scheme, up to three young Russian mathematicians will spend a few weeks in Britain giving a series of survey lectures on the work of their Russian seminar, and up to three young British mathematicians will spend a few weeks in Russia giving a series of survey lectures on the work of their school. The LMS will meet the costs of Russian visitors and the travel costs of UK mathematicians, while the host institutions of the Russian Academy of Sciences will meet the latter's local expenses. It is intended that any mathematician in either Britain or Russia may propose to host such a visit. The proposal should include:

- name and brief cv of the visitor,
- brief description of the course of lectures, and
- letter or email of agreement from the head of the host department.

Any young British mathematician interested in visiting Russia under this scheme is invited to contact the Programme Secretary (see below) who will offer help in identifying the host.

The Scheme is operated by the Programme Committee on behalf of the LMS and the Governing Body of Mathematical Sciences Division of the Russian Academy of Sciences and the Managing Committee of Moscow Mathematical Society for the Russians.

Please send proposals or enquiries to the Programme Secretary, Stephen Huggett (tel: 01752 232710, email: s.huggett@plymouth.ac.uk) or Sylvia Daly (tel: 020 7291 9971 email: grants@lms.ac.uk) or by post to De Morgan House.

EDINBURGH MATHEMATICAL SOCIETY
LONDON MATHEMATICAL SOCIETY

JOINT MEETING
Group Theory

Edinburgh

Friday and Saturday 12–13 December 2008

A joint meeting of the Edinburgh Mathematical Society and the London Mathematical Society will take place on 12–13 December 2008. The meeting will be held in Lecture Theatre C, School of Mathematics, James Clerk Maxwell Building, King's Buildings, University of Edinburgh. The topic of the meeting is *Group Theory*.

Friday

2.45 pm EMS/LMS business

3.00 pm **Alain Valette** (Neuchâtel)
The Haagerup property and its stability properties

4.00 pm Tea

4.30 pm **Efim Zelmanov** (San Diego)
Asymptotic properties of finite groups and finite-dimensional algebras

Saturday

10.00 am **Laurent Bartholdi** (Göttingen)
Automatically presented groups

11.00 am Coffee

11.30 pm **Martin Bridson** (Oxford)
Dimension, rigidity and fixed point theorems

There will be a dinner on the Friday evening.

For more information, and to register and book for the dinner, either visit the website www-groups.mcs.st-and.ac.uk/~colva/edconf.html or contact Tom Lenagan (tom@maths.ed.ac.uk).

LMS INVITED LECTURES SERIES

Programme Committee will be considering proposals for the 2010 Invited Lectures at its meeting in February 2009. Proposals are now invited from anyone who, in addition to suggesting a topic and lecturer, would be prepared to organize the meeting at their own institution or a suitable conference centre. A grant is given to the host department to support attendance at the lectures.

The Society's Invited Lectures series consists of meetings at which a single speaker gives a course of about ten expository lectures, examining some subject in depth, over a five day period (Monday to Friday) during a University vacation. The meetings are residential and open to all interested. It is intended that the texts of the lectures given in the series shall be published. In addition to full expenses, the lecturer is offered a fee of £1,250 for giving the course and a further fee of £1,500 on delivery of the text in a form suitable for publication.

Enquiries about the Invited Lectures should be directed to the Programme Secretary at the Society (grants@lms.ac.uk). The deadline for the submission of a proposal is **Friday 30 January 2009**. Programme Committee hopes to make a decision on 20 February 2009.

Recent previous lecturers:

B. Dubrovin *The geometry of isomonodromic deformations*
T. Goodwillie *Calculus of functors*
P. van Moerbeke *Random matrices, random permutations and integrable lattices*
M. Fukushima *Dirichlet forms and related stochastic analysis*
M.W. Davis *The geometry and topology of Coxeter groups*
D. Ben-Zvi *Geometric Langlands correspondence*
M.F. Singer *Introduction to the Galois theory of differential and difference equations*
A. Okounkov *Random surfaces*

The 2009 Invited Lectures will be given by Alexandru Ionescu (University of Wisconsin at Madison) on the theory of black holes in general relativity. The lectures will take place at the University of Edinburgh from 14 to 18 April 2009. For further information contact Jim Wright (J.R.Wright@ed.ac.uk).

SPITALFIELDS DAYS

In 1987, the London Mathematical Society instituted a series of occasional meetings called Spitalfields Days. The name honours our predecessor, the Spitalfields Mathematical Society, which flourished from 1717 to 1845.

A Spitalfields Day is usually associated with a long-term symposium on some specialist topic at a UK university. One of the symposium organizers is asked to arrange a one-day meeting at which selected participants, often distinguished experts from overseas, will give survey lectures on topics in the field of the symposium or other types of lecture accessible to a general mathematical audience. These meetings are publicized in the Newsletter and all members are invited to attend.

The standard grant for a Spitalfields Day is £500 and is intended to meet actual supplementary costs associated with the event (for example, cost of a subsidy for a lunch for participants and administrative costs). We also encourage grant holders to make some of it available in the form of small (£50) travel grants to enable LMS members and research students to attend the event.

Anyone involved in running a symposium who would be interested in organizing a Spitalfields Day is invited to write to Dr S.A. Huggett, Programme Secretary at the Society (grants@lms.ac.uk). The format need not be precisely as described, but should be in a similar spirit. For examples of previous Spitalfields Days visit www.lms.ac.uk/meetings/spitalfields.html.

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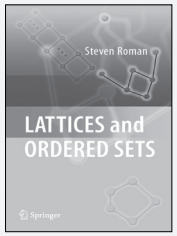


Lattices and Ordered Sets

S. Roman, Irvine, CA, USA

This book is intended to be a thorough introduction to the subject of order and lattices. Prerequisites consist mostly of a bit of mathematical maturity, such as a basic undergraduate course in abstract algebra.

2008. Approx. 330 p. 43 illus. Hardcover
ISBN 978-0-387-78900-2 ► **€ 46,95 | £35.50**

Introduction to Siegel Modular Forms and Dirichlet Series

A. Andrianov, Steklov Institute of Mathematics, St. Petersburg, Russia

The author's aim is to present a concise and self-contained introduction to an important and developing area of number theory that will serve to attract young researchers to this beautiful field.

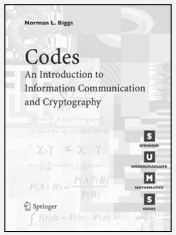
2009. Approx. 210 p. (Universitext) Softcover
ISBN 978-0-387-78752-7 ► **€ 42,95 | £32.50**

Class Field Theory

N. Childress, Arizona State University, Tempe, AZ, USA

This book presents the material using the original techniques of proof, but in a fashion which is cleaner and more streamlined than most other books on this topic.

2009. Approx. 335 p. 25 illus. (Universitext) Softcover
ISBN 978-0-387-72489-8 ► **€ 34,95 | £27.99**



Codes
An Introduction to Information Communication and Cryptography

N. L. Biggs, London School of Economics, UK

This book is an integrated introduction to the mathematics of coding. It provides careful explanations of the basic principles without recourse to jargon.

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January 2009 | 978-0-19-921914-8 | Hardback | £70.00

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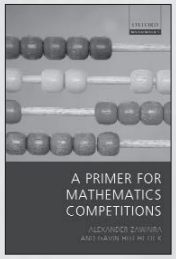

A Primer for Mathematics Competitions

Alex Zawaira and Gavin Hitchcock

A comprehensive resource containing an entertaining selection of problems in mathematics.

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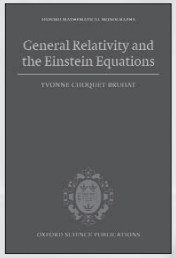

General Relativity and the Einstein Equations

Yvonne Choquet-Bruhat

Aimed at researchers in mathematics and physics, this monograph, in which the author overviews the basic ideas in General Relativity, introduces the necessary mathematics and discusses some of the key open questions in the field.

OXFORD MATHEMATICAL MONOGRAPHS
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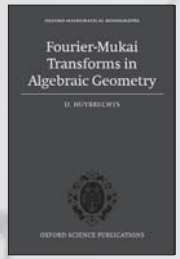


Fourier-Mukai Transforms in Algebraic Geometry

Daniel Huybrechts

Seminal text by a leading researcher is based on a course given at the Institut de Mathematiques de Jussieu. The key aspect of this book is the derived category of coherent sheaves on a smooth projective variety. Full proofs are given and exercises aid the reader throughout.

OXFORD MATHEMATICAL MONOGRAPHS
April 2006 | 978-0-19-929686-6 | Hardback | £56.00

For more information and ordering details, please visit www.oup.co.uk/academic/science

HENRI CARTAN

Henri Cartan, who died on 13 August 2008 at the age of 104, was one of the most eminent and influential mathematicians of the 20th century. He was elected an Honorary Member of the LMS on 21 May 1959 and was also a Foreign Member of the Royal Society and an Honorary Graduate of Oxford University. He held similar honours from all over the world.

Michael Atiyah writes: In the 1950s he made fundamental contributions to algebraic topology and the global theory of several complex variables. His foundational work on the sheaf cohomology of complex manifolds transformed the subject. In all this, his most famous pupil J-P. Serre collaborated and found the counterpart for algebraic geometry. The Cartan Seminars of this period were widely read and influenced a whole generation of geometers.

Henri Cartan was the son of a leading mathematician of the preceding era, Elie Cartan, whose work on Lie Groups and differential geometry became the basis of the global geometry which his son and others would develop. Henri Cartan was very active in many areas beyond his pure research. Notably he was one of the founders of Bourbaki, the group of young French mathematicians who aimed to reorient pure mathematics. Their ideas certainly reinvigorated mathematics after World War II.

In the aftermath of World War I German mathematicians had been ostracized, mainly by the French, and this soured international relations in the mathematical world for many years. After World War II, Cartan was in the lead of those French mathematicians who held out the hand of friendship to their German colleagues, thus avoiding the schism of the 1920s.

It was perhaps natural that Cartan should become President of the International Mathematical Union and, in that capacity, he was very active in supporting the human rights of mathematicians in all parts of the world. He felt very strongly on this issue and continued his involvement even after retiring from the IMU.

As this list of his activities indicates, Cartan was a man of great energy and drive. He also possessed considerable charm and elegance. To use an archaic phrase he was a 'real gentleman'. This showed itself in his attitude to the younger generation, and his friendliness attracted many talented students to work with him. Although not one of his students, I came under his influence and worked with him on the IMU. I admired him greatly, both as mathematician and as a person.

NEWS FROM THE IMU

Emmy Noether Lecturer

Emmy Noether was one of the great mathematicians of her time, someone who worked and struggled for what she loved and believed in. Her life and work remain a tremendous inspiration. The 2010 Emmy Noether Lecture will be presented as a plenary lecture at the International Congress of Mathematicians (ICM) in August 2010 in Hyderabad, to honour women who have made fundamental and sustained contributions to the mathematical sciences.

There have been Emmy Noether Lectures at four previous ICMs, and this will be the second time that the selection of the Emmy Noether Lecturer has been made formally by the IMU. The IMU Executive Committee has established a committee of five, chaired by Cheryl Praeger (Australia), to select the 2010 Emmy Noether Lecturer. The committee will conduct their work over the next 6–9 months, and suggestions for consideration by the committee may be sent to Cheryl Praeger (praeger@maths.uwa.edu.au).

The above item is taken from the 31st issue of the IMU electronic newsletter *IMU Net* (see www.mathunion.org/Publications/Newsletter).

MATHEMATICS POLICY ROUND-UP

Mathematics again hit the headlines in the press with the publication of Ofsted report *Mathematics: Understanding the Score*. The report looked at 84 primary schools and 108 secondary schools and rated only 55% of their mathematics work 'outstanding' or 'good' – the rest was at best 'satisfactory', which is not seen as good enough, or at worst 'inadequate'. The Ofsted team also pointed out the problems in recruiting suitably qualified mathematics teachers and warned that too much teaching concentrated on getting students to pass exams rather than developing understanding. In response, Schools Minister Jim Knight said, "We know that more needs to be done to improve maths for the long term."

The Qualification and Curriculum Authority has received a variety of responses to its consultation on mathematics GCSE. The Joint Mathematical Council, with the Advisory Committee on Mathematics Education (ACME) and the National Centre for Excellence in Teaching Mathematics, drew together a response from across the mathematics community, supporting the introduction of two GCSEs (building on the recommendation made by Professor Adrian Smith in his 2004 report, *Making Mathematics Count*) to recognise the relative workload and difficulty of the subject. But the JMC also called for the introduction to be delayed a year until 2011 in order to ensure the QCA and stakeholders could mutually agree details and that the two GCSEs are approved together to ensure the stability of the subject. A further response from the LMS, IMA and HoDoMS reinforced the JMC response.

The LMS Education Committee is discussing whether to submit a formal response to a consultation on the proposed Diploma in Science. The committee was concerned that the mathematics content of the diploma should be such that its graduates could still go on to study mathematical science or mathematically rich subjects at first degree or higher level, as recommended by ACME. It is encouraging the mathematics community to respond to the consultation on this issue.

The London Mathematical Society and the Institute of Mathematics and its Applications have together joined CaSE, the Campaign for Science and Engineering (formerly Save British Science). CaSE is a pressure group aiming to 'improve the scientific and engineering health of the UK'. Its objective is to communicate to Parliament and the nation as a whole the economic and cultural importance of STEM subjects and the vital need for its funding by Government and industry. CaSE has long been making the case for mathematics, both as a vital subject to its science and engineering members, but also as a subject in its own right. In particular, Professor Peter Saunders of the Mathematics Department at King's College London has been a member of the CaSE Executive Committee for some time, very effectively is flying the flag for mathematics. The Royal Statistical Society is already a member of CaSE and other members include universities, subject societies and businesses.

Dame Julia Higgins has taken over the Chair of ACME. Dame Julia is currently Principal of the Faculty of Engineering at Imperial College, London where she is also professor of polymer sciences. The previous chair, Professor Adrian Smith announced that he would stand down from the position in September as it raised conflict of interests with his new role as Director General of Science and Research at the Department for Innovation, Universities and Skills. ACME has also announced that it is assisting Sir Jim Rose in his review of the aims of mathematics teaching in primary schools.

Finally, overall student satisfaction in universities is higher than ever, according to the 2008 National Student Survey. In particular, satisfaction in the mathematical sciences is good, with mathematics and statistics students' responses ranking it the 35th most satisfying subject of the 108 surveyed. Of the 3,851 mathematics and statistics students who responded (a 65.9% response rate), 88.7% expressed overall satisfaction. This year, geology gained the highest satisfaction rating, with 95.2% of its students agreeing with the statement "Overall, I am satisfied with the quality of my course." The least satisfied students were on Cinematics and Photography courses, with only 67.3% agreeing with the statement.

Caroline Davis
Mathematics Policy and Promotion Officer

CECIL KING TRAVEL SCHOLARSHIP 2008

The 2008 Cecil King Travel Scholarship has been awarded to Matthew Morrow, a PhD student at the University of Nottingham. The London Mathematical Society makes the award of up £5,000 annually to a young mathematician of outstanding promise, to support a period of study or research abroad for a typical period of three months. Matthew will use the Scholarship to fund trips to the Einstein Institute of Mathematics at the Hebrew University of Jerusalem, the IHÉS in Paris and Harvard University, during the 2008–09 academic year. He intends to investigate various topics related to higher-dimensional adelic analysis, including the representation theory of algebraic groups over two-dimensional local fields.

Matthew Morrow

FERMAT PRIZE FOR MATHEMATICS RESEARCH

Université Paul Sabatier 2009 Award

The Fermat Prize rewards research work in fields where the contributions of Pierre de Fermat have been decisive:

- Statements of variational principles
- Foundations of probability and analytical geometry
- Number theory

The spirit of the prize is focused on rewarding the results of researches accessible to the greatest number of professional mathematicians within these fields. The amount of the Fermat prize has been fixed at €20,000. The Fermat prize is awarded once every two years in Toulouse. Winners of preceding awards are:

- A. Bahri, K.A. Ribet (1989)
- J.-L. Colliot-Thélène (1991)
- J.-M. Coron (1993)
- A.J. Wiles (1995)
- M. Talagrand (1997)
- F. Bethuel, F. Hélein (1999)
- R.L. Taylor, W. Werner (2001)
- L. Ambrosio (2003)
- P. Colmez, J.-F. Le Gall (2005)
- C. Khare (2007)

Rules governing the award, candidacy formalities, etc. are available from the organizing secretariat of the Fermat prize: Prix Fermat de Recherche en Mathématiques, Service Communication, Université Paul Sabatier, 31062 Toulouse cedex 9, France or on the web at www.math.ups-tlse.fr/Fermat. Closing date for application forms is **30 June 2009**.

LEVERHULME TRUST AWARDS

The following mathematicians have been awarded research fellowships by the Trustees of the Leverhulme Trust, under Schemes administered by their Research Awards Advisory Committee.

Research Fellowships

- José Miguel Figueroa-O'Farrill (Personal Chair of Geometric Physics, University of Edinburgh) *Killing superalgebras in string theory*
- Yan Fyodorov (Professor of Mathematical Physics, University of Nottingham) *A single particle in random energy landscapes*
- Rebecca Hoyle (Reader in Mathematics, University of Surrey) *Dynamic modelling of the switch to dormancy in MTB*
- Valentin Khoze (Professor, Department of Physics, Durham University) *Aspects of supersymmetry*
- Karen Page (Lecturer, Department of Mathematics, University College London) *Mathematical models of human tumour dormancy*
- Jonathan Pila (Senior Lecturer, School of Mathematics, University of Bristol) *Diophantine geometry in o-minimal structures*
- Ian Roulstone (Professor of Mathematics, University of Surrey) *Geometry in data assimilation and fluid mechanics*
- Jonathan Sherratt (Professor, Department of Mathematics, Heriot-Watt University) *Mathematical modelling of spatiotemporal ecology*
- Michiel van den Berg (Professor of Pure Mathematics, University of Bristol) *Intersections of Brownian paths and spectral theory*

Early Career Fellowships

- Toby Cubbitt (Department of Mathematics, University of Bristol) *Characterising quantum channels*
- Sibylle Schroll (Department of Mathematics, University of Leicester) *Representation theory in dynamical systems*
- Rüdiger Thul (School of Mathematical Sciences, University of Nottingham) *The noisy nature of intracellular calcium dynamics*
- Shiqiang Yan (School of Engineering and Mathematical Sciences, City University) *Floating bodies with liquid tanks in steep waves*

THE OSTROWSKI PRIZE 2009

Call for proposals

The aim of the Ostrowski Foundation is to promote the science of mathematics by periodically awarding an international prize for the best performances in the field of pure mathematics and of the theoretical foundations of numerical mathematics. As a rule, the prize is awarded every two years to the scientist, or group of scientists, who, during the preceding five years, has achieved the highest scientific accomplishments in these fields. It is awarded independently of politics, race, religion, domicile, nationality or age. The prize in 2007 amounted to 100,000 Swiss francs.

The Foundation awards at the same time a scholarship for a talented young mathematician, whose name is to be suggested by the current prize winners. The scholarship will enable the winner to spend a year for further education (as a postdoctoral fellow) at a university of his or her own choice.

The previous prize winners are, in chronological order: L. de Branges, J. Bourgain, M. Ratner and M. Laczkovich, A. Wiles, Y. Nesterenko and G. Pisier, A. Beilinson and H. Hofer, H. Iwaniec, P. Sarnak and R. Taylor, P. Seymour, B. Green and T. Tao, O. Schramm.

The jury invites proposals for candidates for the Ostrowski Prize 2009. The proposals including a short justification should be sent to David.Masser@unibas.ch before **1 December 2008.**

INSTITUT DES HAUTES ÉTUDES SCIENTIFIQUES

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

Created in 1958, IHÉS is an international research institute, registered as a Foundation in the public interest since 1981. Its mission is to support and develop theoretical research in mathematical sciences, physics and, more recently, at the interface with biology and medicine. Support for IHÉS comes from several sources: the French Ministry of Research, several European research agencies among which the Engineering and Physical Sciences Research Council (EPSRC), the US National Science Foundation, the Max-Planck Gesellschaft, the Swiss and also some private foundations and companies.

EPSRC has been supporting IHÉS for a number of years, fostering 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 go to www.ihes.fr). Their visit can be an opportunity 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, Samson Shatashvili, Ali Chamseddine

Long-term CNRS visitors: Christophe Breuil, Ofer Gabber, Dirk Kreimer, Christophe Soulé, Claire Voisin

External Members of the Scientific Council: Curtis Callan, Michael Green, George Papanicolaou, Gerd Faltings

WILLIAM HODGE FELLOWSHIPS 2009/2010

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. Fellows are encouraged to have a UK-based mentor and to be in contact with the UK mathematics community.

Conditions for application: PhD in Mathematical Sciences or Theoretical Physics obtained in 2007, 2008 or in early 2009. One of the two grants will be awarded to an applicant who has spent at least the preceding nine months at a UK academic institution or has just graduated from a UK institution.

Selection of applicants: Applications will be reviewed and selection made based on the sole criterion of excellence in research by the IHÉS Scientific Council in December 2008. The Committee consists of the Permanent Professors, the Director, and the external members (the list can be found above).

Fellowship starting date: Autumn 2009.

How to apply: Applications should be made on the IHÉS website (www.ihes.fr) and should include: the application form, a cover 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: 23 November 2008.

For further 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, website: www.ihes.fr.

GRESHAM LECTURES 2008–09

John Barrow, FRS, Professor of Geometry

Maths is Everywhere

25 November 2008:	*The importance of being peripheral*
11 December 2008:	*Harmonic things*
12 January 2009:	*The maths of pylons, art galleries and prisons under the spotlight*
29 January 2009:	*Some interesting curves*
3 March 2009:	*How to be a winner: the maths of race fixing and money laundering*

The lectures all take place in the Lecture Theatre, Royal College of Surgeons of England, 35–43 Lincoln's Inn Fields, Holborn, London WC2 at 1.00 pm. For further information, telephone 020 7831 0575 or visit the website www.gresham.ac.uk. Admission is free.

THE *PLUS* NEW WRITERS AWARD

Bring Maths to Life

Plus magazine (http://plus.maths.org) is looking for the science writers of the future who can make mathematics lively and interesting for a general audience. Published online and free of charge, *Plus* is an award-winning magazine about mathematics which is aimed at the general public. Its articles by top mathematicians and science writers provide a window into the world of mathematics with all its beauty and applications, and cover fields as diverse as art, medicine, cosmology and sport. The *Plus* new writers award gives our readers a chance to join our acclaimed list of authors, including physicist Stephen Hawking, mathematician and writer Marcus du Sautoy, and NASA astronaut Michael Foale.

We invite all our readers, including secondary school and university students, to write an article on any mathematical topic they choose. This could be a mathematical idea or concept, an application of mathematics, a historical topic, the story of a mathematician, or a mathematical controversy. Whatever it is, we would like to read it! It's a great chance to communicate your passion to people who'd normally run a mile when they hear the word maths!

The competition has separate categories for university and secondary-school students. The winning entries will be read by an international audience of over a hundred thousand in the June 2009 issue of *Plus*. The closing date is **31 March 2009**, and more information on the competition can be found on the *Plus* site, http://plus.maths.org/competition/index.html. Besides the fame and glory of seeing your article published in *Plus*, there are also prizes for the best submissions, including signed copies of popular science books and an Apple iPod.

Dr Marianne Freiberger
Editor, *Plus* Online Magazine

BCS FACS

The London Mathematical Society

BCS-FACS EVENING SEMINAR

Joint event with the London Mathematical Society

Tuesday 11 November 2008 at 5.45 pm
De Morgan House, London

The Equations of Computer Science

Professor John Tucker (University of Wales, Swansea)

Throughout science and engineering our knowledge of the world is most elegantly and usefully expressed in equations. Most fields have equations they use all the time and are treasured for the profound insights they reveal through their study. Several equations are truly famous, especially those of physics. But what are the equations of Computer Science?

This lecture will examine the role of equations in specifying data, software and hardware. I will show how skills in equation formation have transformed our capacity to analyse computing systems of all kinds. I will explain the historical context and development of these ideas in algebra, logic, and computability theory and how they were transformed to solve practical questions of programming.

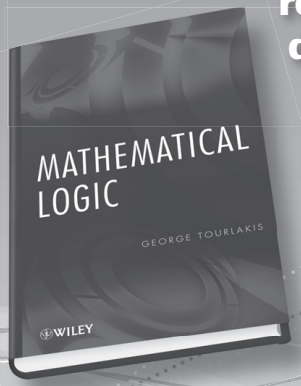
Finally, I will discuss how these conceptual insights and methods are finding new applications in the foundations of physics.

Refreshments will be available from 5.30 pm.

The venue is De Morgan House, 57–58 Russell Square, London WC1B 4HS. Underground: Russell Square or Holborn.

The seminar is free of charge and open to everyone. If you would like to attend, please email Paul Boca (Paul.Boca@googlemail.com) by Friday 7 November.

It presents mathematical or "symbolic" logic as a reliable tool for deductive reasoning in many disciplines



Mathematical Logic
George Tourlakis
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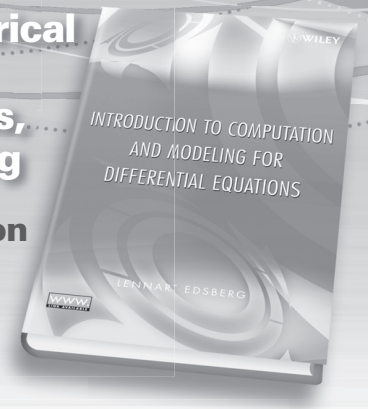
September 2008
ISBN: 9780470280744

A unified view of numerical analysis, mathematical modeling in applications, and scientific computing



Introduction to Computation and Modeling for Differential Equations
Lennart Edsberg
Cloth 236pp
August 2008
ISBN: 9780470270851

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SUPPORTING MATHEMATICS IN THE DEVELOPING WORLD

Offer of seed grants by the European Mathematical Society Committee for Developing Countries

A number of initiatives are currently under way to address the challenge of supporting mathematics in the developing world. In particular the European Mathematical Society's Committee for Developing Countries (EMS–CDC) is impressed by a scheme of the International Science Program ISP (www.isp.uu.se) at Uppsala University, initiated by one of our members Anders Wandahl, whereby a department in the developed world 'twins' with a department in the developing world, to help them in various ways including paying for subscriptions to mathematical databases. What has been done so far by our Swedish colleagues can be found on the 'e-Math for Africa' website (http://math.golonka.se).

Another effort towards helping developing countries to access literature and to sharpen the links with colleagues from institutions in developed countries has been initiated by the French Mathematical Society SMF (http://smf.emath.fr/en/Adhesions/ParrainagePED). Under this program, laboratories or institutes with enough funds will support active mathematical centres with less financial support by offering them a registration as an institutional member of SMF, and the SMF will offer a subscription to one of its journals. The idea is that such a process is part of a cooperation between the two institutions, and that eventually after a few years the institution from the south should be in a position to subscribe itself to SMF.

We wish to support this scheme, which we call 'twinning', in every possible way, because we think it involves directly mathematicians on a one-to-one basis and, once links are forged, can be easily sustainable in the long term at no great initial cost.

Although the CDC does not have much funding, we want to launch this project by offering, during an initial period, a kind of 'seed grant' of up to €500, to any department or institution in the developed world that wishes to participate in such a twinning scheme and is willing to provide at least the same amount in support. We hope that such an initial grant will introduce mathematicians to some very worth-while work which they will find satisfying to continue afterwards. Interested departments or individuals in the developed world should address any of the people listed below in the first instance. As of now, such twinning schemes have been established between the following institutions:

- University of Alger, Algeria and Grenoble, France
- University of Bangui, Central African Republic and Uppsala University, Sweden
- University of Burundi, Burundi and Linköping University, Sweden
- University of Changsha, China and LMAM, Vannes, France
- Université de Cocody, Ivory Coast and Stockholm University, Sweden
- University of Havana, Cuba and Humboldt-Universität, Berlin, Germany
- University of Dakar, Senegal and Strasbourg, France
- University of Hanoi, Vietnam, and Toulouse, France
- University of Hanoi, Vietnam and Paris XIII, France
- University of Natural Science in Ho Chi Minh, Vietnam and Institut de Mathématiques de Jussieu, Paris, France
- University of Kenitra, Morocco and Nancy, France
- Jomo Kenyatta University of Agriculture and Technology, Kenya and Delta College, USA
- University of Khartoum, Sudan and Umeå University, Sweden
- Université de Kinshasa, DR Congo and Lund University, Sweden
- Kwame Nkrumah University of Science and Technology, Ghana and University of Leicester, UK
- University of Malawi, Malawi and the Royal Institute of Technology, Sweden
- University of Malawi Polytechnic, Malawi and the Royal Institute of Technology, Sweden
- Université des Sciences et Techniques de Masuku, Gabon and Stockholm University, Sweden
- Université Marien Ngouabi, Republic of Congo and Lund University, Sweden
- Moi University, Kenya and Delta College, USA
- Université de Monastir, Tunisia and Marne-la-Vallée, France
- Université Abdou Moumouni de Niamey, Niger and Chalmers/Göteborg University, Sweden
- University of Kerouan, Tunisia and Université de Cergy-Pontoise, France

This list is not very long, but it is a beginning! And we hope that colleagues from other European countries will join in the scheme. We would certainly like to see this scheme broadened, both in scope and in the geographical areas involved. The activities we have in mind for the twins to share could include:

1. Help with journal and database subscriptions, as detailed above
2. Donation of books, journals and equipment
3. Supplying guest lecturers and supporting visits from the less developed department
4. Mentoring (see also the London Mathematical Society scheme at www.lms.ac.uk/grants/nuffield_scheme.html)
5. Support for attending major conferences: this we find very important for the career of individual mathematicians in the developing world

There is no doubt that as the scheme matures, more activities will be found beneficial. The ultimate aim would be that the elder twin will take care of the younger twin, in the real sense of 'twins', has the latter's mathematical well-being at heart and will come to its help whenever necessary. Thus the younger twin will have somebody to 'turn to' in case of need – ideally until no such needs are required as a result of global progress!

On behalf of the European Mathematical Society Committee for Developing Countries:
Leif Abrahamsson (Vice-Chair, leifab@math.uu.se)
Lars Andersen (lda@math.aau.dk)
Tsou Sheung Tsun (Chair, tsou@maths.ox.ac.uk)
Michel Waldschmidt (miw@math.jussieu.fr)
Anders Wandahl (anders@golonka.se)

ATIYAH80: GEOMETRY AND PHYSICS

A three-day workshop organized by ICMS to celebrate the 80th birthday on 22 April 2009 of Sir Michael Atiyah OM, PRS, PRSE will take place from 20 to 22 April 2009 in Edinburgh. The speakers are:

- Tom Bridgeland (Sheffield)
- Robbert Dijkgraaf (Amsterdam)
- Simon Donaldson (Imperial College, London)
- Nigel Hitchin (Oxford)
- Mike Hopkins (Harvard)
- Frances Kirwan (Oxford)
- Dusa McDuff (Stony Brook/Barnard)
- Graeme Segal (Oxford)
- Paul Seidel (MIT)
- Cumrun Vafa (Harvard)
- Edward Witten (IAS, Princeton)

The workshop will include a panel discussion on *The Higgs boson: what, why, how?* chaired by Sir Michael Atiyah, with the participation of Peter Higgs (Edinburgh), David Saxon (Glasgow) and Edward Witten (IAS, Princeton). For further details visit the conference website at www.icms.org.uk/workshops/Atiyah80. The workshop is supported by an LMS conference grant.

INTERNATIONAL MATHEMATICAL COMPETITIONS

This year the United Kingdom Mathematics Trust sent teams to compete in two major international competitions the Romanian Masters in Mathematics event in February and the International Mathematical Olympiad (IMO) in Madrid in July.

The Romanian event was by invitation, and was for teams of three, competing individually. The United Kingdom won the event scoring 51/84, followed by Russia and Serbia both on 49, then Poland and the Romania A team both on 37. Our three team members all won medals. Jonathan Lee (Loughborough Grammar), Tim Hennock (Christ's Hospital) and Dominic Yeo (St Paul's School, London) were awarded gold, silver and bronze medals respectively. The UK team was the only one from outside Eastern Europe. It is hoped that next year China and the United States will also compete.

In the International Mathematical Olympiad, Tim Hennock (Christ's Hospital), Peter Leach (Monkton Combe School, Bath), Tom Lovering (Bristol Grammar), and Alison Zhu (Simon Langton Girls GS, Canterbury) all won silver medals, while Freddie Manners (Winchester College) and Dominic Yeo (St Paul's School, London) won bronze medals.

The UK also deliberately sent an inexperienced team to compete as a guest side at the Balkan Mathematical Olympiad in Macedonia in May.

In the run up to the IMO, an inaugural 'Mathematics Ashes' contest was organized against Australia. The scripts were burned, and placed in a funeral urn as a trophy for future generations. This event has attracted media interest in Australia, and the story of the Mathematics Ashes will be broadcast on ABC Radio National.

Detailed reports on all these events are available at www.imo-register.org.uk/reports.html.

Geoff Smith (University of Bath)
Chair, British Mathematical Olympiad

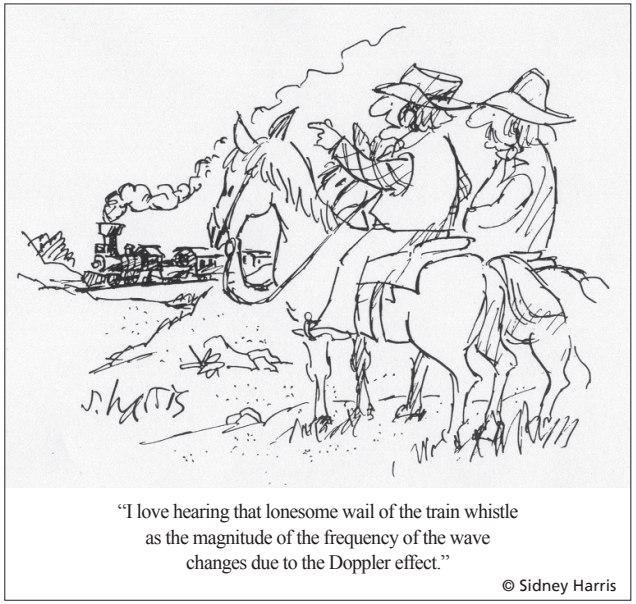
AUSTRALIAN STATISTICAL CONFERENCE

The Statistical Society of Australia (SSAI) will host the Australian Statistical Conference 2010 in Fremantle, Western Australia from 6 to 10 December 2010. Delegates from all areas of work in statistics will be encouraged to communicate with one another, and will join world-class Australian and international statisticians to discuss new work and developments and share their knowledge and expertise.

The theme for the conference, *Statistics in the West: Understanding our World*, provides opportunities for presentations on a wide range of topics. Invited speakers currently include:

- Persi Diaconis (Stanford University, USA)
- Tadeusz Bednarski (University of Wrocław, Poland)
- Noel Cressie (Ohio State University, USA)
- Gordon Smyth (Walter & Eliza Hall Institute of Medical Research, Melbourne)

For further information visit the website at www.promaco.com.au/2010/asc.



"I love hearing that lonesome wail of the train whistle as the magnitude of the frequency of the wave changes due to the Doppler effect."

© Sidney Harris

BRITISH COMBINATORIAL CONFERENCE

The 22nd British Combinatorial Conference will take place at the University of St Andrews from 5 to 10 July 2009. The invited speakers are:

- Arrigo Bonisoli (Università di Modena e Reggio Emilia, Italy)
- Peter J. Cameron (Queen Mary, University of London, UK)
- Willem H. Haemers (Tilburg University, The Netherlands)
- Gholamreza B. Khosrovshahi (IPM, Iran)
- Alexandr V. Kostochka (University of Illinois at Urbana-Champaign, USA)
- Daniela Kühn (University of Birmingham, UK)
- Marc Noy (UPC, Spain)
- Oliver Riordan (University of Oxford, UK)
- Gordon Royle (University of Western Australia)

The speakers will each give a one-hour talk. These talks are intended to be accessible to postgraduate students, postdoctoral fellows and researchers in all areas of combinatorics. In addition participants are invited to give a talk of 20 minutes on any combinatorial topic. A problem session will be held on the last day. There will be a wide-ranging social programme, including a conference banquet, an excursion and a musical evening.

The organisers are Sophie Huczynska, James Mitchell and Colva Roney-Dougal. For further information, email bcc2009@mcs.st-and.ac.uk or visit the website at http://bcc2009.mcs.st-and.ac.uk.

UK–JAPAN WINTER SCHOOL 2009

The UK–Japan Winter Schools have been held since 1999. For the next Winter School the topic will be *Dynamics and Complexity*. The aim of the School is to bring together Japanese and UK scientists, in particular young researchers and students, in a relaxing and stimulating atmosphere. It will be held from 8 to 11 January 2009 at the University of Bath.

This will be preceded by the Global Analysis and Quantisation Day: In honour of Yoshiaki Maeda at the University of Warwick on 7 January 2009.

For further information on these two events visit the websites http://euclid.ucc.ie/pages/staff/berndt/conferences/UK-Japan09/ws2009home.html and http://tmugs.math.metro-u.ac.jp/g-warwick2009/index.html.

INTEGRABLE DAY

A half-day workshop on Integrable Systems will be held at Loughborough University (Room KG107) on 28 November 2008. The speakers are:

- Leonid Chekhov (Moscow/Loughborough) *Matrix models: integrability and asymptotic expansions*
- Sergey Cherkis (Dublin) *Instantons in curved backgrounds and gauge theories with impurities*
- Andrew Dancer (Oxford) *Superpotentials and the Einstein equations*
- Ian McIntosh (York) *Quaternionic KP hierarchy*

The meeting is part of a collaborative workshop series on *Classical and Quantum Integrability*, supported by an LMS Scheme 3 grant, involving Edinburgh, Glasgow, Leeds and Loughborough Universities. Funds may be available to support the attendance of research students. Enquiries should be addressed to the organiser, A.P.Veselov@lboro.ac.uk or 01509 222866.

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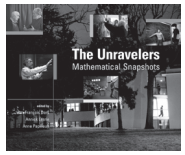

"This book captures the ardor of mathematicians and scientists: their wonder, their dreams, their exhilaration, their charm. What genius there is in these photographs! And the accompanying gems of essays by the Unravelers themselves illuminate the glorious experience of being immersed in the world of the mathematical sciences. This is a book for everyone—immediately accessible, immediately engaging."
—Barry Mazur, Harvard University

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To apply, please send a letter of application and a full CV by 28 November 2008, quoting vacancy reference LH8/106, to Liz Hay, HR Officer, The Edinburgh Building, Shaftesbury Road, Cambridge, and CB2 8RU.

ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES

DISCRETE SYSTEMS AND SPECIAL FUNCTIONS

29 June – 3 July 2009

in association with the Newton Institute programme entitled
Discrete Integrable Systems
(19 January – 3 July 2009)

Workshop organisers: Peter Clarkson (Kent), Rod Halburd (University College London), Masatoshi Noumi (Kobe, Japan) and Adri Olde Daalhuis (Edinburgh)

Theme of workshop: The workshop will be dedicated to the relationship between the theory of integrable discrete systems and (linear and nonlinear) special functions and orthogonal polynomials, together with their applications. We expect to represent topics such as:

- integrable lattice equations and their solutions
- discrete Painlevé equations and *q*-Painlevé equations
- elliptic special functions and integrals
- special functions associated to Riemann surfaces
- orthogonal polynomials and associated special functions
- hypergeometric series

Further information and application forms are available from the web at: www.newton.ac.uk/programmes/DIS/disw04.html. Completed application forms should be sent to Tracey Andrew, Programme & Conference Secretary, Isaac Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH or via email to: t.andrew@newton.cam.ac.uk.

Closing date for the receipt of applications is **31 October 2008.**

NUMERICAL AND ANALYTICAL SOLUTION OF STOCHASTIC DELAY EQUATIONS

A new international research network has been formed, based at the University of Chester, UK and funded by the Leverhulme Trust, on the *Numerical and Analytical Solution of Stochastic Delay Equations*.

The network will hold regular workshop meetings, the first of which will be held in Chester from 3 to 7 November 2008. Details of the programme, feature speakers, registration and accommodation appear in the meetings section of the website at www.chester.ac.uk/maths/conferences/meeting08.html. The organisers are also inviting proposals for contributed talks. For further scientific information email Neville Ford, director of the research network (njford@chester.ac.uk), or for more general enquiries and to join the mailing list for news of future events, email Nicola Williams (Nicola.Williams@chester.ac.uk).

RECORDS OF PROCEEDINGS AT MEETINGS

REGIONAL ORDINARY MEETING

held on *15 September 2008* at the University of Swansea. At least 55 members and visitors were present for all or part of the meeting.

The meeting began at 2.00 pm, with the Programme Secretary, Dr S.A. HUGGETT, in the Chair. Seven people were elected to Ordinary Membership: S. Bowry, P.L. Kassaei, R. Kessar, K. Magaard, T.F. Melham, G. Roberts, A. Strohmaier; four were elected to Associate Membership: H. Ahmadinezhad, N.A. Culverhouse, D.A. Smith, T.S. Trudgian; and three were elected under Reciprocity Agreements: E. Bayer-Fluckiger (Swiss Mathematical Society), K.P. Hart (Royal Dutch Mathematical Society), F.N. Kautzmann (American Mathematical Society).

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

Professor A. TRUMAN introduced a lecture given by Professor Nicola Fusco on *Equilibrium configurations of strained films: existence, regularity and qualitative properties*.

Professor Truman introduced a lecture given by Professor István Gyöngy on *Numerical solutions of optimal stopping and control problems*.

After tea, Professor N. JACOBS introduced a lecture given by Professor Bert Peletier on *Dynamical systems in pharmaceutical sciences*.

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

After the meeting there was a reception and dinner at the University of Swansea.

LMS SOUTH WEST AND SOUTH WALES REGIONAL MEETING

Report

The London Mathematical Society held its South West and South Wales Regional Meeting 2008 on 15 September at Swansea University. It was opened by the LMS Programme Secretary Dr Stephen Huggett with the usual welcoming of new members to the LMS.

The first talk of the event, on *Equilibrium configurations of strained films: existence, regularity and qualitative properties*, was delivered by Professor Nicola Fusco of Naples. He presented recent results on equilibrium configurations of epitaxially strained crystalline films grown on a relatively thick substrate, which he considered in the context of plane linear elasticity. The topics of the talk ranged from considering existence of solutions to their qualitative properties including of the establishment of new regularity results.

Please provide caption and photo credit line

Professor István Gyöngy of Edinburgh gave the second talk of the day, entitled *Numerical solutions of optimal stopping and control problems.* He first introduced two types of controlled dynamical systems, namely the deterministic Hamilton–Jacobi equation and the stochastic Bellmann equation. The latter was then used to study the problem of optimal stopping by employing a finite difference scheme as a numerical approximation of Bellmann's equation. The talk concluded with a result by Krylov on the rate of convergence of the finite difference approximations.

The talk *Dynamical systems in pharmaceutical sciences* by Professor Bert Peletier (Leiden) was the final one of the meeting. The speaker began by introducing the concepts of kinetic and dynamical modelling in pharmaceutical sciences. The focus of the talk, however, was the dynamical part. He explained how mathematical models describe the evolution of pharmacological processes in terms of systems of ordinary differential equations. In particular, he related large drug dose asymptotics to a travelling wave phenomenon.

All the talks were well received, with many comments and questions from the audience. The meeting ended with a reception and dinner on the campus of Swansea University which provided a good opportunity to socialise among fellow mathematicians.

Please provide caption and photo credit line

The two-day workshop which followed covered a range of topics from within the subject areas of Calculus of Variations and Nonlinear Partial Differential Equations. It gave an insight into recent developments of active researchers and provoked discussions on related open problems in these fields.

Kristian Evans and
Sandra Landwehr
Swansea University

PROOF-READING:

Telling Stories With Numbers, Telling Stories With Words

How does doing mathematics and writing stories compare? What role is mathematics playing when it is used in literature? Are stories important to understanding mathematics? Do writers have eureka moments? Together, Marcus du Sautoy and Mark Haddon discuss the fashionable art/science interface at The Royal Society, 6–9 Carlton House Terrace, London SW1Y 5AG on Monday 10 November 2008 at 6:30 pm. Admission is free (no ticket or advance booking). Doors will open at 5.45 pm. Seats are allocated on a first-come-first-served basis.

REVIEWS

Is Mathematics Inevitable? A Miscellany edited by Underwood Dudley, Mathematical Association of America, 2008, £29.99, ISBN 978-0-88385-566-9.

If you think this is a philosophical treatise on the inevitability of mathematics you are mistaken. The 'Miscellany' part of the title gives a better idea about the book. Although some essays in the collection do touch on the essence of mathematics, this book edited by Dudley is more of an omnibus of 26 excerpts from the mathematics literature. There are some extracts of classic writings like those of Paul Halmos and Lewis Carroll but also contributions of lesser-known writers. The collection ranges from reflective pieces to interesting historical notes to recreational mathematics. Each chapter includes someone's writing preceded by an introduction by Dudley. The chapters generally end with a short biographical note on the contributor of the chapter.

The first three essays (by Jean Dieudonné, Morris Kline and Nathan Altshiller Court, respectively) discuss the essence of mathematics and have illuminating quotations. Other chapters have a different nature but each is enjoyable in its way. For instance, there is an amusing speech by a British MP on the importance of mathematics, a humorous 'proof' that a horse has infinite legs, a story of a mathematical crank who tried to 'square the circle', insightful paradoxes, a legend about the legislation on π in Indiana and clever detective work by a historian on the thinking process of an ancient Greek mathematician. Other topics include George Boole, calculating prodigies, origins of well-known problems and the problem with Euclid's fifth postulate. There are two clever notes by Richard Guy, co-author of the book *Winning Ways for your Mathematical Plays*. One note presents five different proofs on why there are at least three times as many obtuse-angled triangles as acute-angled ones. Another is a fascinating paper on the Strong Law of Large Numbers. The extract from Halmos's autobiography is on his engaging views on the 'Moore method' of teaching (which appears to be equivalent to throwing a beginner into the deep end of the pool).

Although there are various miscellaneous mathematical collections in the market, this book provides useful glimpses into the rich history and literature of mathematics instead of just presenting recreational material. It also helps that Dudley himself is a veteran mathematician who has written many books for the MAA (The Mathematical Association of America) and was also the Pólya Lecturer for the MAA in 1995–96 and 1996–97. The hard cover finish of the book is excellent. In a similar vein to the extract by Halmos, it would have been useful if Dudley had included extracts of other classic writings like those of Hardy and Pólya. Nonetheless the editor has collected a varied and remarkable mix of writings which will have something to interest everyone.

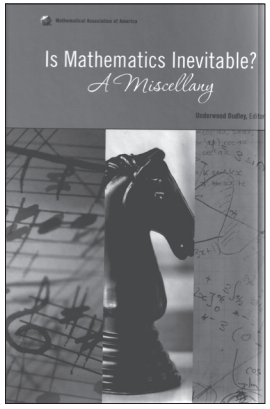
Haris Aziz
University of Warwick

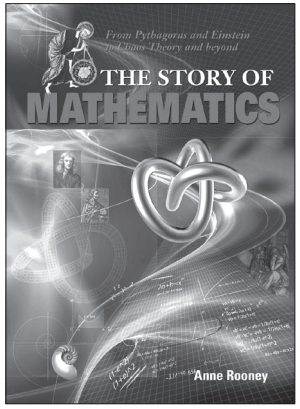
The Story of Mathematics by Anne Rooney, Arcturus, 2008, £9.99, 208 pp, ISBN 978-0-572-03413-9

Anne Rooney's book *The Story of Mathematics* is a well-written and richly illustrated book covering all areas of mathematics and its development. The author initially takes us back to basics asking where the "squiggles we use to represent 1, 2, 3, and so on" came from, before she leads us into the natural development of mathematics with number theory, geometry, algebra, calculus and set theory, or as she poignantly puts it, "the death of numbers".

The number theory topic begins with a brief discussion on arithmetic, and Rooney highlights how different civilisations met the same challenges and found different solutions to them. This is followed by a list of magical numbers and even unspeakable numbers which have been banned over time for different reasons be they political or religious.

Each of the topics is carefully constructed to end with a 'Moving On' section which links the chapters to its successor. Having been established, the numbers system needed to be put to use. Throughout the book she gives insight into the mathematicians' lives and also provides sketch portraits and photographs. This helps understand why they found a need to work in a particular area of mathematics. Rooney manages to link all the mathematicians' work together in a comprehensible manner and often refers to other pages in the book, highlighting that throughout mathematical history solutions have not been "a straightforward triumph of an individual genius" but rather each mathematician is standing on the shoulders of his ancestors. As a student, I found this pool of knowledge to be a much needed confidence booster as the prior familiarity has facilitated my future knowledge growth when a mathematician is referred to in lectures.





Before I read this book, I had never considered the fact that a "flat map of a spherical world cannot accurately represent both distance and shape". Yet the point, once stated, is obvious. Stereographic projection is just one of the many concepts that the author addresses which excite the mind and I found myself wanting to research further. Rooney simply scratches the surface leaving the reader to go into depth on their own. It gives a foundation which is often skipped out in lessons because of time considerations.

The book is accessible by all, as Rooney avoids the use of formulae where it is not necessary. She has also provided a glossary but by no means an extensive one (and it is a pity there is no suggested further reading). The only prerequisite is an interest in the area of mathematics and perhaps those who study mathematics will appreciate the history better than those who don't. The algebra topic emphasises the difference between practical mathematicians and theoretical mathematicians and how conceptual objections limited the work of practical mathematicians. Practical mathematicians had

conceptual difficulty with negative solutions (and later on complex solutions) as they regarded negative numbers as absurdity. I find that the book offers a reasonable way to tackle the idea of multi-dimensional space by considering weather conditions rather than trying to visualise a 26-dimensional world.

For me the most fascinating section of the book was on the use of probability to prove the existence of God. In the example given of John Arbuthnot it is apparent where the flaw in his argument lay but incredibly it was not spotted at the time. This just showed how far we have evolved mathematically. Throughout, the book does give a concise and clear account of the main contributors and dates involved in the development of mathematics from ancient origins until the present day which thus gives a better understanding of the subject.

Charlene Mliswa
Mathematics undergraduate
University of Greenwich

How Many Socks Make a Pair? Surprisingly Interesting Everyday Maths by Rob Eastaway, JR Books, 2008, 174 pp, £12.99, ISBN 978-1-9-6217-59-4.

Mathematics makes some people sweat; it also makes other people smile. However, both types of people wear socks. This book is for all of these people (and even for sandal wearers) because Rob Eastaway does a very good job of curing those with maths sickness and widening the smiles of those who already enjoy the subject. Continuing his work from books such as *Why Do Buses Come In Threes?* and *How Long Is A Piece Of String?*, *How Many Socks Make A Pair?* introduces everyday situations, tricks, puzzles and handy tips that have their origins in mathematical thought. Whether you already know the answer to the title question, think you know the answer or even just think 'what?!' there is probably plenty to keep you entertained.

The topics are well selected, taking in contemporary favourites such as Su Doku, the Da Vinci code and Buzz Lightyear (yup!) but don't think it's all bubblegum because before you know it you are becoming familiar with weightier vintage material such as Pascal's Triangle and the Fibonacci Sequence. Excellent diagrams throughout help illustrate the careful explanations, and what excellent explanations they are! The writing is clear and well considered and the author's passion and understanding for the subject shines through, as he manages to extend a welcoming hand to newcomers to the subject whilst still providing enough intrigue and insight to keep more experienced readers engaged. The writing exudes a friendly charm which is hard to resist and it is this skill that makes a popular mathematics book such as this not only work but in this case delight.

First-year students would be especially wise to seek out a copy as they will particularly benefit from being introduced to ideas such as Hilbert's Hotel and Zeno ahead of their classmates. And they certainly won't have any excuses for wearing odd socks to lectures any more.

Alex Cole
Undergraduate
Greenwich University

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/newsletter/calendar.html).

NOVEMBER 2008

3-7 Numerical and Analytical Solution of Stochastic Delay Equations Workshop, Chester (375)
11 LMS/BCS-FACS Evening Seminar, London (375)
21 LMS AGM, London (375)
25 *The Importance of Being Peripheral*, Gresham Lecture, London (375)
28 Integrable Systems Workshop, Loughborough (375)

DECEMBER 2008

1-2 From Nonlinear Dynamics to Systems Biology Workshop, Warwick (373)
1-5 Large Amplitude Internal Waves, ICMS Workshop, Edinburgh (369)
5-12 Partial Differential Equations and Applications Conference, Hong Kong (372)
8-12 Rotating Stratified Turbulence and Turbulence in the Atmosphere and Oceans, INI Workshop, Cambridge (371)
10-12 Infinite Group Theory and Related Topics Workshop, Edinburgh (373)
10-12 Triangulated Categories Workshop, Swansea (374)
11 *Harmonic Things*, Gresham Lecture, London (375)
12-13 Joint Meeting with the Edinburgh Mathematical Society, Edinburgh (375)
15-19 Classical and Quantum Transport in the Presence of Disorder, INI Conference, Cambridge (372)
16-18 Mathematics in Signal Processing, IMA Conference, Cirencester (370)

JANUARY 2009

5-9 Dense Granular Flows, IMA Conference, INI Cambridge (370)
7 Global Analysis and Quantisation Day, Warwick (375)
8-11 Dynamics and Complexity, UK–Japan Winter School, Bath (375)
12 *The Maths of Pylons, Art Galleries and Prisons under the Spotlight*, Gresham Lecture, London (375)
12-23 Algebraic Lie Theory Instructional Workshop, INI, Cambridge (374)
29 *Some Interesting Curves*, Gresham Lecture, London (375)

FEBRUARY 2009

27 Mary Cartwright Lecture, London

MARCH 2009

3 *How to be a Winner: The Maths of Race Fixing and Money Laundering*, Gresham Lecture, London (375)
23-27 Algebraic Lie Structures with Origins in Physics Workshop, INI, Cambridge (373)
31-4 Apr LMS Invited Lectures, A. Ionescu, Edinburgh

APRIL 2009

6-9 BMC, Galway
7-9 BAMC, Nottingham (370)
20-22 Atiyah80: Geometry and Physics Workshop, Edinburgh (375)

JUNE 2009

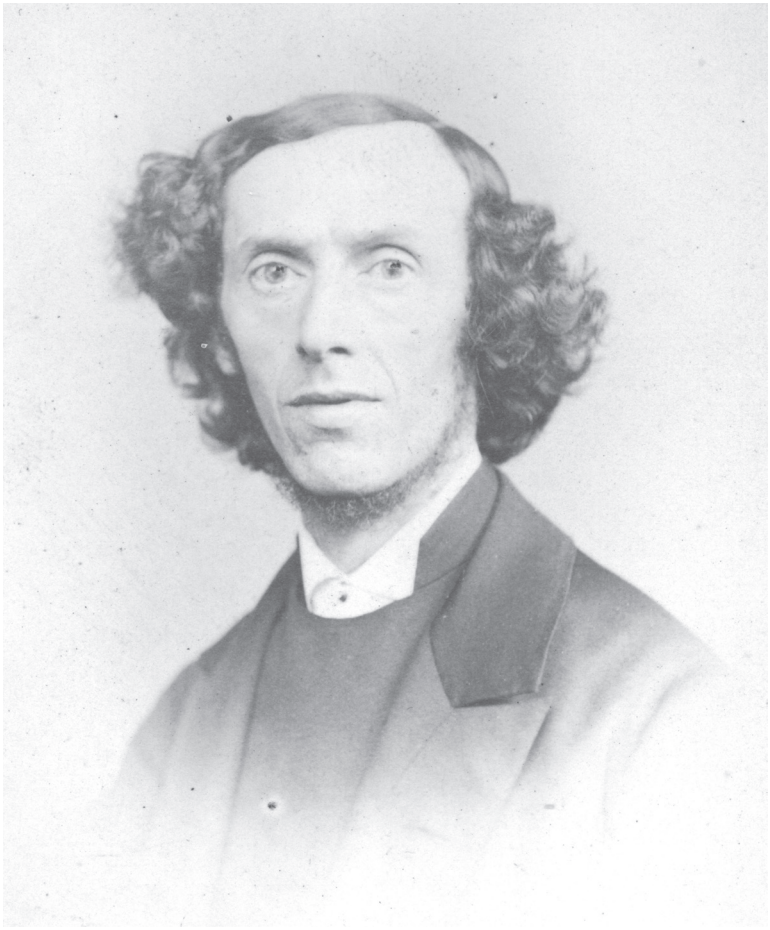
8-11 British–Nordic Congress of Mathematicians, Oslo (374)
15-19 Nonlinear PDE and Free Boundary Problems, Warwick
29-3 July Discrete Systems and Special Functions Workshop, INI, Cambridge (375)

JULY 2009

5-10 22nd British Combinatorial Conference, St Andrews (375)

R. HARLEY

LMS member 1865–1909



H.J. Whitlock, Birmingham

Rev. Robert Harley, Hon. MA Oxon, FRS, FRAS
Corresponding member of the Manchester Literary and Philosophical Society
Honorary and Corresponding member of the Queensland Philosophical Society
Principal of The College, Huddersfield

Robert Harley.