THE LONDON MATHEMATICAL SOCIETY

NEWSLETTER

No. 382 June 2009

Society Meetings and Events

2009

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AGM
Presidential Address
London

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Joint meeting with the Belgian Mathematical Society, Leuven

THE CHOICE OF NAME

In late April, as we write this, it is not known whether or not there is to be a New Mathematics Society. However, in the April issues of *Mathematics Today* and the LMS *Newsletter* an undertaking was given that a case for each of the proposed names would be published this month.

The two possibilities for name are 'The British Mathematical Society' and 'The Royal Society for Mathematics'.

We are grateful to those who have agreed to put forward cases for each of these names, which you are now invited to consider.

However, it is important to realise that a Royal title is not bound up with the Royal Charter or with Royal patronage.

(i) The basis on which the New Society would be created is that a Royal Charter would be sought and obtained. Royal Charters are granted by the Privy Council, a branch of the Ministry of Justice. Both the IMA and the LMS have Royal Charters, and each of the names suggested for the New Society is entirely consistent with being governed by Royal Charter.

(ii) Use of the word 'Royal' in the name of the society is by permission. Responsibility for granting permission lies with a different part of the Ministry of Justice. If, despite a vote in favour of 'Royal', permission is refused then the position will be that the New Society would become 'The British Mathematical Society', whatever the vote.

(iii) Royal Patronage is not implied and has no part whatsoever in the proposed New Mathematical Society.

These three 'Royal' aspects of the New Society are completely independent of one other:

item (i) is the basis on which matters have been proceeding;

item (ii) is what you may shortly be voting on;

item (iii) is not, and has never been, in prospect.

Charles Evans,
Honorary Secretary IMA
Charles Goldie,
General Secretary LMS

The British Mathematical Society

This note argues in favour of the choice 'The British Mathematical Society' for the name of a possible new mathematical society in our country.

First, it would indeed be very unfortunate and deficient not to have the geographical location in the title. This seems arrogant and insular when most other national and international mathematical societies, such as the 'American Mathematical Society', 'French Mathematical Society' and 'European Mathematical

Society', do proudly specify where they come from. One could argue between, say 'United Kingdom' and 'British' – but 'British' does seem an acceptable and succinct term. Our new society, like LMS and IMA, should keep its already achieved international standing, by attracting members from overseas: up to about 30% of the membership is based outside the UK. We should strive to remain an internationally important society. Without 'British' in the name, endless confusion could occur because people overseas genuinely do not know what location the name refers to; other countries have royal families, so which one are we referring to? Postage stamps 150 years ago were one thing, but times have changed now. Even 'The Royal Society' is really 'The Royal Society of London'.

Second, current political and social opinions are opposed to the hereditary and hierarchical connotations of association with royalty. We as a mathematical society, in the 21st century, cannot import a hereditary concept into the title, when mathematical skills are patently not hereditary. The great strength of our subject is the elitism of our respect for beautiful and significant mathematics and the central democratic foundation that such mathematics is judged on its own merits, without deference to any status of the author. The title 'royal' takes us in the opposite direction.

We should be aware that quite a few mathematicians, both within our country and overseas, do object to any implied association with the woolly endowment of royalty on mathematics, with even greater conviction than mentioned here. Our aspiration is that the new mathematical society within our country will grow and flourish over decades to come, perhaps while political institutions change, and that it should embrace all mathematicians from all parts of our country and overseas, of whatever ideology. We should be very concerned about the possibility of losing members because they do not take our new society seriously or are alienated by the vagueness of using out-moded terminology such as the word 'royal' in the name, which falsely indicates a vintage which is patently inaccurate.

H. Garth Dales, Leeds,
Council Member, LMS
Feroze Duggan, London,
Member, Professional Affairs Committee, IMA

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The Royal Society for Mathematics

The name 'The Royal Society for Mathematics' was put forward as a possible name for the society after much discussion. The wording 'Society for Mathematics' was thought to be particularly appropriate: it would be much more than a 'Society of Mathematicians'; it certainly could not be seen as a 'Society for Mathematicians' (i.e. its members or potential members) since that would run counter to its aims and objectives as a charitable body under current charity law; the term 'Society of Mathematics' doesn't make much sense, whereas 'Society for Mathematics' encapsulates concisely what the New Society will aspire to be.

The 'Royal' designation would be granted only by special privilege since it has a particular significance within the UK constitution and must be approved through the Ministry of Justice. The prefix 'Royal' is commonly understood to signify an organisation that is the leader in its class – not just in the UK but further afield (e.g. in Ireland, where the Royal Irish Academy and the Royal Dublin Show are highly regarded institutions). A unified IMA/LMS will surely fulfil this leading role for mathematics. There is no other title that would so neatly encapsulate the enhanced status that the unified society expects to achieve. It would carry esteem and signify a proper recognition for mathematics. It has been suggested that the Royal designation might offend some existing members of the IMA or LMS. Hopefully this would be a small minority willing to accept the outcome of a democratic vote if this name were chosen (and approved). Even staunch republicans have been known to accept (and even covet) Fellowship of The Royal Society!

The 'Royal' designation would serve very effectively to indicate that the society is UK based without getting into knots over geographical titles such as British, UK or British/Irish etc. or implying any lack of international dimension. It would not confine the new body geographically whilst conveying a strong association with some of the most distinguished learned and professional bodies in this country. Think of the Royal Society of Chemistry, the Royal Statistical Society, the Royal Astronomical Society, and so on. The merger recently agreed between the Institute of Biology and the Biosciences Federation is likely to result in a Royal Society of Biology.

Whatever its name, the new society will strive to cooperate effectively with both the Edinburgh Mathematical Society and the Irish Mathematical Society, and there is a view that the absence of a geographical title such as 'British' will simplify cooperation in both cases.

John G. McWhirter FRS FREng, Cardiff,
Past President, IMA
Simon N. Chandler-Wilde, Reading,
Council member, LMS

LMS *NEWSLETTER* ONLINE

Readers are reminded that they may choose to read the LMS *Newsletter* on screen. A PDF file of the current *Newsletter* can be accessed at www.lms.ac.uk/newsletter/current_issue.pdf at any time. The current *Newsletter* and the archive of past *Newsletters* are also available in HTML (web-browser) format via www.lms.ac.uk/newsletter/. The HTML version is conveniently structured according to news categories, with indexes listing the individual articles, making it very easy to navigate to items of particular interest. Commercial adverts and the monthly cartoon are not included in the HTML version.

Anyone who wishes to stop receiving a paper copy can choose to receive instead an email alert at the beginning of each publication month, containing precise links to the current PDF and HTML versions. To do so, please write to membership@lms.ac.uk.

RECORDS OF PROCEEDINGS AT MEETINGS

SPECIAL GENERAL MEETING

At a Special General Meeting of the Society held at 3:30 pm on *Tuesday 21 April 2009* in the Chemistry Lecture Theatre, University College London, Gower Street, London, 37 members were present.

The President, PROFESSOR E.B. DAVIES, FRS, in the Chair announced that the business of the meeting as previously notified to members was to consider the motion:

> that the Council of the London Mathematical Society be authorized to negotiate with the Council of the Institute of Mathematics and its Applications (IMA) in regard to the forming of a New Unified Mathematical Society to replace both the London Mathematical Society and the Institute of Mathematics and its Applications
>
> and subsequently to transfer the assets of the London Mathematical Society to the New Society
>
> and to wind up the affairs of the London Mathematical Society and surrender its Charter
>
> noting that the New Society will be formed on the principles of the consultation document (*Proposal for a New Unified Mathematical Society*) subject to negotiations with the Charity Commission and Privy Council on the drafting of a new Charter, By-laws and Regulations
>
> and noting that no action will be taken to create the New Society or to wind up the London Mathematical Society unless both societies vote to proceed and the negotiations for a New Society are successful.

In accordance with Statute 23, no other business, or variation to the motion, could be conducted at the Meeting. Recognising the importance of the issues and that members would wish to discuss the matter, but in order for the vote to be taken before members with other commitments had to depart, the President proposed to the meeting that, unless discussion was completed earlier, he would call for the vote to be taken at 4:30pm. The meeting accepted this proposal by a nod of heads, with no one objecting.

The President announced that, in accordance with Statutes, he had determined that the voting on the motion should be by means of voting papers, distributed to members on arrival, to which proxy votes registered by members unable to attend would be added. The President gave a brief outline of the 10-year history of the discussions with the Institute of Mathematics and its Applications (IMA), the first consultation (the Frameworks Study Initiative) and the subsequent Next Steps Initiative leading to the proposals for a single unified society. The proposals had been adopted and endorsed by both Councils, circulated to all members for consultation, and an extensive consultation had ensued. He summarised the decisions made by Council since March 2008 and a Council Retreat in June 2008, leading to the Referendum in March 2009

and Council's decision in March to proceed to the two Special General Meetings in April and May as required by the Society's Charter. The outcomes would be reported to Council in July 2009.

The Programme Secretary, DR S. HUGGETT, proposed a procedural motion, distributed to those present and seconded by DR C. MULVEY, seeking an adjournment of the Meeting on the grounds, *inter alia*, that the decisions contained in the principal Motion of the meeting are so fundamental that they are tantamount to changes in the Charter and Statutes, and therefore require a two-thirds majority. He also referred to a request from a number of members that, in any case, in view of the importance of the decision the Council should consider taking action on the motion only if it were passed with a two-thirds majority. The President responded that formal legal advice had been taken the day before the meeting which confirmed all previous advice received, i.e. that Statute Clause 15, not Clause 16, pertained and a simple majority was required; the written advice from the lawyer would be circulated to Council members for their meeting on 3 July. The petition from the members would be considered by Council but the advice was that, in the meantime, it would not be appropriate for the Council or the Meeting to progress other than on the terms of Clause 15. The President also noted that, under Statute 23, no other business than that previously notified might be conducted; he rejected the request for an adjournment of the Meeting.

Some members asked by whom the legal advice was taken, and on whose behalf, noting that Council knew nothing of this advice, and raised questions of the process followed by Council in approving the procedures and the calling of the Meeting, to which the President responded.

The view was expressed by some present that the majorities in favour in the Council votes and the Referendum were insufficient to give confidence to Council or to members to proceed with the proposal to create a single society. The President reminded the meeting of the voting figures, which clearly showed that a significant proportion of those entitled to vote (at Council and in the Referendum) were in favour. Some members were concerned that the President, in his tour of universities and in articles written, had expressed positive support for the proposals. The President and other Council members noted that Council had adopted and commended the proposals and had authorised the President to represent the case in favour of the proposal – it was wholly inappropriate to criticise the President personally for promulgating Council decisions.

Some members spoke about the proposals and the reasons why they supported or did not support the creation of a single society. References were made to the history of the split between the two societies and the importance of regaining a single voice. It was asserted that the profile of mathematics, nationally and internationally, was damaged by the separation; to the outside world the splits in mathematics – into Pure and Applied or any other division – were irrelevant.

Members returned to the procedure which had been followed, and it was argued that the *Newsletter* article entitled 'Don't let a non-vote become a no vote' had misled

members into believing that a large majority would be needed before the Society could be dissolved.

At 16:40 the President called the vote and the Scrutineers collected voting papers from members. After a break for counting, during which time tea was served, the Scrutineers announced that the votes were 433 in favour of the motion and 351 against. The President announced that, under the terms of Clause 15, the motion was carried and would be taken to the second SGM on 29 May 2009.

The meeting closed at 17:05.

Post-meeting notes:

1. The written advice from the lawyer was received on 28 April 2009 and circulated to Council on 29 April.
2. The Scrutineers subsequently reported that, after a detailed rechecking of the votes, the results were 437 in favour and 361 against.

Peter Cooper
Executive Secretary
12 May 2009

DEPUTY ENGLISH EDITION EDITOR, RUSSIAN MATHEMATICAL SURVEYS

The Society is seeking to appoint a deputy to the English Edition Editor of *Russian Mathematical Surveys,* which is the cover-to-cover translation of *Uspekhi Matematicheskikh Nauk* and other articles of the Moscow Mathematical Society. The Deputy Editor would work closely with the English Edition Editor, Dr Hal McFaden, providing a final edit of the translated copy of a few papers per issue. The English Edition Editors are responsible for all matters relating to style and grammar of the English version and provide an assessment of the quality and complexity of the translations received.

Although matters relating to mathematical content are the responsibility of the authors and Russian editors, a knowledge of mathematics is essential, as is an excellent knowledge of English style and grammar. An understanding of Russian in the context of mathematical research papers would be an advantage. Occasional attendance at meetings in London is required.

The appointment carries an honorarium which will be a *pro-rata* payment dependent on the number of pages edited.

For further information and to discuss the position, please contact the Publications Secretary, Professor Kenneth Falconer FRSE (kjf@st-andrews.ac.uk), or Susan Hezlet (susan.hezlet@lms.ac.uk) in the first instance.

ANNUAL ELECTIONS TO LMS COUNCIL

In addition to the normal route for nominations to Council, via the Nominating Committee (see *Newsletters* for April and May), there is also provision for all members of the Society to make nominations direct. Any direct nominations should be sent to the Executive Secretary (peter.cooper@lms.ac.uk) to arrive before noon on **1 September 2009**. Such nominations must bear the signatures of the Nominator and three Seconders and of the Nominee.

MATHEMATICS POLICY ROUND-UP

Most of the mathematics policy news for this month is concerned with mathematics at secondary school level. The Advisory Committee on Mathematics Education (ACME) deals with education issues (in England) up to the age of 19 and has been working closely with the relevant government agencies to ensure that the views of the mathematics community are heard. ACME meets regularly with senior members of the Department for Children, Schools and Families and the Department for Innovation, Universities and Skills, and has been able to contribute to several policy developments in mathematics education which have the support of the mathematics community and which it believes will improve mathematics education in England.

LMS and ACME

LMS Vice President Professor Alice Rogers has been on ACME for three years and has recently had her term extended until March 2011. She is now Deputy Chair of the committee. Although the remit of ACME does not extend beyond age 19, since ACME's inception the importance of a representative from a HE Mathematics Department has been recognised; Professor Rogers took over from Professor Chris Robson who was for some years Education Secretary of the LMS. While her position in ACME is in her own right and not as a representative of the LMS, she believes that her contribution helps ensure that mathematics education policies are developed which provide richer and more challenging opportunities for learners in schools and colleges who have a talent for mathematics. Alice is involved in two current ACME projects; one is looking at 'Level 3' (approximately ages 16-19) mathematics from 2016, while the other is investigating the mathematics which students of one kind and another need as they move to Higher Education or into employment, in order to inform curriculum developments in mathematics.

For more information on ACME visit www.acme-uk.org.

AS/A-Level changes

Draft criteria for AS/A-levels in mathematics, further mathematics, use of mathematics and use of statistics have been released for consultation by the Qualifications and Curriculum Authority. The aim is to bring Mathematics A-level into line with other subjects by reducing the number of units studied from six to four, although AS/A-level Further Mathematics would continue to be assessed as six units. A new AS/A-level in Use of Mathematics would be introduced and AS/A-level Statistics would be renamed *Use of Statistics*. All AS and A-levels would have "a greater emphasis on problem solving, modelling and mathematical communication" and there would no longer be a calculator-free paper or a list of formulae for candidates to memorise. Specifications in Mathematics and Further Mathematics would be introduced in September 2012 and those in Use of Mathematics and Use of Statistics would be introduced in September 2011. The Joint Mathematical Council is co-ordinating responses from the mathematics community. The closing date for responses is **10 July 2009**.

For more details visit www.qca.org.uk/qca_21230.aspx. For ACME's position statement visit www.acme-uk.org/downloaddoc.asp?id=118. *Mathematics in Education and Industry* (MEI) has produced guidance on the consultation. Visit www.mei.org.uk/files/qcaconsultation/Finding_your_way(Final).pdf.

Twin GCSE in mathematics

Meanwhile, the twin GCSE plan has moved ahead with the independent regulator Ofqual approving the criteria for a pair of linked mathematics GCSEs. This means that piloting of the pair can now proceed from 2010. ACME has worked determinedly to get to this stage. Its chair, Dame Julia Higgins, said, "We move a step closer to a system that will better equip students with the mathematical skills they

LONDON MATHEMATICAL SOCIETY

ORDINARY MEETING

Friday 3 July 2009, 3.30–6.00 pm

J.Z. Young Lecture Theatre, Anatomy Building, Gower Street, University College London, London WC1

Speakers:

Sergiu Klainerman (Princeton University)

Gerhard Huisken (Max-Planck-Institut)

Times and titles to be confirmed.

There are limited funds available to contribute in part to the expenses of members of the Society or research students to attend the meeting. Contact Isabelle Robinson (isabelle.robinson@lms.ac.uk) for further information.

A reception will be held at De Morgan House at 6.30 pm with a dinner afterwards at a nearby restaurant, costs and location to be confirmed. Those wishing to attend should inform Isabelle Robinson (isabelle.robinson@lms.ac.uk) by **26 June**.

require to flourish in higher education and the workplace. Furthermore, students studying for both GCSEs ought to have a better appreciation of mathematics both in itself and in relation to its importance in other disciplines and in analyzing problems related to the real world."

For more information see the statement from ACME at www.acme-uk.org/news.asp?id=132.

Science Diploma

The government has delayed by one year the introduction of the controversial science diploma – intended to be the equivalent of A-level – until September 2012. Education minister Jim Knight said, "The new science diploma needs to be the very best it can be to provide a significant boost to both participation and attainment in science – so we can't afford to rush it." However, the BBC News website suggests there have been disagreements as to the content of the core syllabus, with particular concerns over how mathematics would fit into the diploma. ACME has warned that the introduction of the diploma could not only affect the supply of mathematicians and statisticians if there was insufficient mathematical content, but could also have detrimental effects on the mathematical skills of a wide range of future students and employees.

For more details on ACME's position see www.acme-uk.org/news.asp?id=91.

Caroline Davis
Mathematics Policy and Promotion Officer

INTERDISCIPLINARY CHALLENGES FOR COMPLEXITY SCIENCE

Call for Proposals

Complexity-NET is a joint initiative of research funding and/or management agencies from eleven different partner countries with significant activities in the field of complexity science. The overarching objective of the project is to step up the cooperation between and coordination of research activities carried out at national or regional level in the ERA-NET member countries and associated states. The Complexity-NET partners have agreed that this objective is best achieved in the first instance by funding a pilot round of transnational research projects. Specifically the aims of this call are: to fund high-quality, exploratory complexity science research projects, and to facilitate new transnational collaborations in complexity science. More information can be found at www.complexitynet.eu. Closing date: **30 July 2009**.

VISIT OF PROFESSOR L. TUBARO

Professor Luciano Tubaro (Dipartimento di Matematica, Università di Trento) will be visiting the UK from 1 to 14 June 2009. Professor Tubaro's research interests concern Stochastic Partial (and ordinary) Differential Equations. He is one of the leading experts in this field. He will give a talk on *A stochastic reflection problem on a smooth convex set of a Hilbert space* at:

- Warwick, Wednesday 3 June at 16:00, Seminar Room B3.03
- York, Monday 8 June at 14:15, Room G/010, Department of Mathematics, Goodricke College
- Swansea, Thursday 11 June at 15:00, Room 224, Department of Mathematics, Talbot Building

For more details see http://maths.york.ac.uk/www/Tubaro2009 or contact Zdzisław Brzeźniak (zb500@york.ac.uk), David Elworthy (k.d.elworthy@warwickac.uk) or Aubrey Truman (A.Truman@swansea.ac.uk). The visit is supported by an LMS Scheme 2 grant.

VISIT OF PROFESSOR A. DOUCET

Professor Arnaud Doucet (Tokyo Institute of Statistical Mathematics, on leave from the University of British Columbia) will be visiting Imperial College London and University of Bristol from 1 to 15 October 2009. He is a specialist in Sequential Monte-Carlo methods and their applications to nonlinear non-Gaussian time series models. During his visit he will give three talks:

- Tuesday 6 October, Imperial College London (contact Dan Crisan, d.crisan@imperial.ac.uk).
- Friday, 9 October, University of Bristol (contact Christophe Andrieu, c.andrieu@bristol.ac.uk)
- Monday 12 October, University of Oxford (contact Terry Lyons, tlyons@maths.ox.ac.uk)

For further details contact Dan Crisan (d.crisan@imperial.ac.uk). The visit is supported in part by an LMS Scheme 2 grant.

DE MORGAN HOUSE

There are now cycle storage facilities for visitors to De Morgan House. Please ask at reception on arrival.

Please remember also that you can support the Society by recommending the De Morgan House Conference Facilities to colleagues and contacts. Rates are very competitive for a Central London venue and there is also a discounted rate for mathematical charities. Email roombookings@demorganhouse.co.uk or call 020 7927 0800.

Dominic Clark
Group Head (Conferences & Building)

LONDON MATHEMATICAL SOCIETY

SOUTH WEST & SOUTH WALES REGIONAL MEETING

Lecture Theatre C, Avenue Campus, University of Southampton

Wednesday 15 July 2009

Speakers:

Zlil Sela (Hebrew University, Jerusalem)

Jim Howie (Heriot-Watt University)

Cornelia Drutu (Oxford University)

Times and titles to be confirmed.

There will be a dinner afterwards. For registration, further details and to reserve a place at the dinner see the webpage www.maths.soton.ac.uk/~bean/Limitgroups09/ or contact the organisers (details below).

The meeting will be followed by a workshop from 16 to 17 July on *Limit groups and their generalisations.* The following people have agreed to speak at the workshop:

- Martin Bridson (Oxford)
- François Dahmani (Toulouse)
- Vincent Guiradel (Toulouse)
- Dessislava Kochloukova (Campinas)
- Gilbert Levitt (Caen)
- Ashot Minasyan (Southampton)
- Tim Riley (Bristol)

There are limited funds available to support graduate students attending the meeting and/or workshop, and for LMS members attending the meeting. All requests for support should be sent to the organisers (details below).

For information on scientific questions or for information on organisational matters contact the organisers Graham Niblo and Brita Nucinkis (limitgps@soton.ac.uk).

ALL SOULS COLLEGE, OXFORD
Senior Research Fellowships

All Souls College proposes to elect up to four Senior Research Fellows with effect from 1st October 2010 (or an agreed later date): in Classical Studies, in Law and in Mathematics (all subjects broadly conceived).

A Senior Research Fellowship is of comparable academic standing to a Professorship in the University of Oxford. Applicants are expected to have a correspondingly distinguished record of achievement in research.

Further particulars, including details of salary and other terms of appointment, may be obtained from the Warden's Secretary, All Souls College, Oxford OX1 4AL; *mary.yoe@all-souls.ox.ac.uk*. See also the College's website: *www.all-souls.ox.ac.uk*. The deadline for applications will be Friday, 25th September 2009.

Potential mathematical candidates may contact graeme.segal@all-souls.ox.ac.uk or dan.segal@all-souls.ox.ac.uk for more information about the position.

All Souls College is an equal opportunities employer.

ROBIN BULLOUGH

Professor Robin K. Bullough, who was elected a member of the London Mathematical Society on 5 June 2002, died on 30 August 2008, aged 78.

David Silvester writes: Professor Bullough was alumnus of Emmanuel College, Cambridge, and the University of Leeds, and former Chair of Mathematical Physics in the Department of Mathematics at UMIST. He published over 200 scientific papers and was known world wide for his contributions to the theory of solitons.

A symposium in his honour will be held in the School of Mathematics at the University of Manchester from 10 to 11 June 2009. The list of speakers includes many of Robin's colleagues and collaborators. See www.mims.manchester.ac.uk/events/workshops/RB-Symposium/ for further details and registration information.

HANS LIEBECK

Dr Hans Liebeck, who was elected a member of the London Mathematical Society on 26 April 1962, died on 12 March 2007, aged 79. We regret the late appearance of this notice.

AGNES MARY TROPPER

Dr Agnes Mary Tropper, who was elected a member of the London Mathematical Society on 28 June 1945, died on 26 February 2009, aged 91.

Don Collins writes: She was born in 1917 in Sheffield, the eldest child of Leonard Barnett and Agnes Matthewman. At Mitcham Lane primary school in Streatham, London, she revealed an interest in mathematics and science, and used to direct her younger brother in helping her make models and conduct experiments. With a London County Council scholarship, she became a boarder at Christ's Hospital in Hertford from 1929 to 1936, excelling at mathematics and music.

Mary, as she was known, obtained a first-class honours degree in mathematics at Bedford College, London, in 1939 and then a DipEd at the London Institute of Education. During 1940–1942 she taught at Godolphin School in Salisbury and then moved to a school in Harrow. This allowed her to do a part-time MSc at Birkbeck College. These were exhausting years – her MSc research was fitted between teaching all day and fire-watching in the blitz at night. She liked to recount how, one day riding on the top deck of a bus, she observed a V1 flying bomb a short distance away, gliding along parallel to the bus on her level.

In 1946, Mary was appointed to a lectureship at Queen Mary College and wrote a doctoral thesis on infinite matrices under the supervision of Dr Richard Cooke. Her PhD was awarded in 1954 and she published two papers, one in the *Journal of the LMS* and one in the *Proceedings of the AMS*. In 1947, she married Hans Tropper, a member of the QM Electrical Engineering Department, who had come to the UK from Austria in 1931 and later decided not to return. On informing her Head of Department that she was raising a family, she was told politely but firmly that to continue her career, her main priority must be the College.

Much of her academic life was given to teaching and administration, including a stint on the QM Governing Body, but she also wrote and translated books. Her textbooks *Matrix Methods for Electrical Engineers* and *Linear Algebra* were both very successful. The former was translated into other languages and even today second-hand copies are offered for sale on the French and German Amazon websites. Her translations into English included the popular text *Introduction to Modern Mathematics* by Herbert Meschkowski.

She is survived by her two daughters Margaret and Anne and her four grandchildren.

MATHEMATICS OR MISMANAGEMENT: THE CRASH OF 2008

The *Turner Review* [1] published earlier this year does a masterful job of elucidating the factors which came together, acting synergistically to precipitate the global financial disaster of 2008. One factor, which some have singled out as being a root cause, is the reliance the banking industry placed on sophisticated mathematical models. There appear to be two main aspects to these arguments. The first is the extent to which managers understood the mathematical models, and hence were able to make informed judgements and decisions on the basis of them. The second is what the models were being asked to do. I shall discuss each of these aspects in turn, but first want to take a broader view.

Mathematical models are used in banking for a variety of applications. Each model will be built with a different purpose in mind and be based on different premises. One cannot legitimately criticise the model *per se* (unless there is an error in it), but one can criticise its premises, the use to which it is put, and its accuracy as a valid representation of whatever underlying reality it purports to model. Inaccuracies can arise from faulty representations in the mapping from the reality to the model or from inadequate data, and hence poor estimates of any parameters in the model.

The nature of the models varies substantially between these different uses. *Credit scoring models* are statistical, based on often vast amounts of behavioural data describing individual customers. These data-driven models are highly accurate, and are monitored, evaluated and replaced on an ongoing basis. In contrast, *rating models* are built using financial ratios and other measures. Again, within their own terms and context, the models are fine, although associated uncertainty was underestimated. *Pricing models* are at the opposite end of the spectrum. Rather than statistical constructs, they are mathematical constructs, based on ideas such as stochastic calculus.

Turning to the first criticism, there have been suggestions in the press and elsewhere that mathematicians were to blame for developing models that their managers could not understand. This extraordinary assertion suggests that, despite not understanding the models and their implications, the managers were happy to act on the basis of the recommendations deriving from them. But if I jumped into the cockpit of a Boeing 747, and crashed it because I didn't know how to fly it, you would hardly blame Joe Sutter, the 747 chief engineer.

The *Turner Review* carefully chooses its words, and refers to a 'misplaced reliance on sophisticated maths'. It does not criticise the mathematics *per se*, which is doubtless correct within its own remit. It is when one takes a broader perspective, or rather fails to take a broader perspective, that problems arise. The review goes on to say that 'the very complexity of the mathematics used to measure and manage risk, moreover, made it increasingly difficult for top management and boards to assess and exercise judgement over the risks being taken'.

Difficult it may have been, but that is hardly an acceptable excuse. Instead, one might have said 'misplaced *ignorance* of sophisticated maths'. There is an old legal principle, that ignorance of the law is no excuse. The same applies here. Is it not the responsibility of, for example, the directors of banks to ensure that they understand the organisations they run, the tools on which they base their decisions, and the way they conduct their business?

On the second criticism, it is important to recognise that the mathematical models were usually aimed at the micro level. They were not, and did not purport to be, models of the overall economy, or of the interactions between the many players involved such as banks, governments, and other financial institutions. They did not try to say what would happen if other conditions changed. The responsibility for these higher level issues lay with company directors, governments, and regulators, not with the mathematicians tasked with constructing risk measurement and pricing tools at the lowest level.

The *Turner Review* says, 'Mathematical sophistication ended up not containing risk, but providing false assurance that other *prima facie* indicators of increasing risk (e.g. rapid credit extension and balance sheet growth) could be safely ignored.' These assurances would have come from the mathematicians discussing their models in appropriate contexts. Where things broke down was in the broader context, when the conditions under which the models were to be applied no longer held, or when multiple models interacted. The assurances were not false, but there was a failure at managerial levels to take the context into account. For example, issues such as competition between rating agencies providing a motive force for commercial pressures at odds with rating effectiveness are outside the mathematicians' remit (though mathematicians could build models for such things, if asked). Overall, managers' lack of appreciation of the synergistic interactions between different models, built to model isolated systems, should not be blamed on the mathematicians who were not asked to model the entire system. Indeed, the Turner Review (pp. 40–41) refers to this disjunct between individual rationality and collective rationality.

Could one argue that the mathematicians should bear some of the blame for not being more explicit about the limitations of the models, their underlying assumptions, and the restricted contexts in which they applied? Unfortunately, the record shows that when people did try to point out dangers, they were often rebuffed or ignored. When Harry Markopolos pointed out to the United States Securities and Exchange Commission that what the financial fraudster Bernard Madoff was achieving was 'mathematically impossible' using the process he claimed, only a superficial investigation was carried out, and Madoff was cleared.

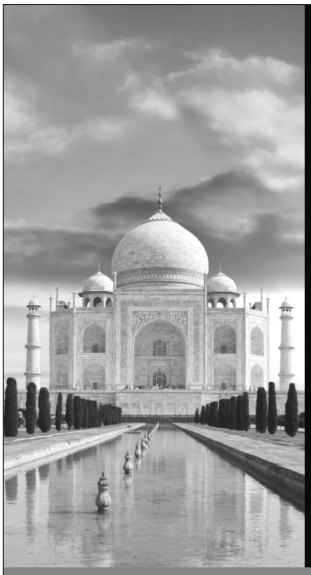
Some of the mathematical models might justifiably be criticised for failure to properly take on board *model uncertainty*. Turner appears to hint at this when he refers (p. 45) to a 'random sample of a definitively existing universe of possible events' (though he describes this as coming from the world of physics, instead of recognising its widespread use in statistics). The, probably legitimate, criticism here is that mathematicians were being employed to build models for describing an intrinsically uncertain world, rather than employing uncertainty professionals – statisticians.

The *Turner Review* says (p. 45): 'But it would also suggest that no system of regulation could ever guard against all risks/uncertainties.' That is a clear truism. No system can ever protect against all risk. It is a question of finding the right balance. It is clear, in retrospect, that the right balance had not been found in the current set-up. But finding that right balance is not the role of those who construct the models – it is the role, and duty, of those who apply the models.

David J. Hand
Imperial College, London

Reference

1. A. Turner, *The Turner Review: A Regulatory Response to the Global Banking Crisis*, http://www.fsa.gov.uk/pubs/other/turner_review.pdf

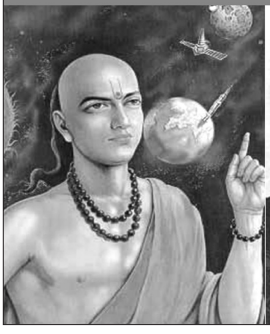


FROM THE INVENTION OF THE ZERO TO THE ASSEMBLY OF THE WORLD'S MOST EMINENT MATHEMATICIANS IT'S BEEN AN EXCITING JOURNEY.

The Indian mathematical community is happy to invite you to the **International Congress of Mathematicians, 2010**. From the invention of the decimal place value system and the fundamentals of calculus to the work of Ramanujan and Harish-Chandra this ICM is as much a celebration of our mathematical tradition as it is an occasion to interact with the finest minds in the field today.

Please join us in the historic city of Hyderabad, a beautiful blend of modernity and heritage, at the state-of-the-art Hyderabad International Convention Centre.

Dates:19th - 27th August, 2010
Venue: Hyderabad International Convention Center, Hyderabad, India
To know more log on to www.icm2010.org.in



GREETINGS FROM THE ORGANISERS OF ICM 2010

The *International Congress of Mathematicians* (ICM) of 2010 will take place from 19 to 27 August 2010 at the Hyderabad International Convention Centre, Hyderabad, India. We urge you to participate in the Congress and help us make it a great success.

The preparations for the Congress are now under way. Some information about the city of Hyderabad, pre-registration, registration, some practical information about visiting India, etc., can be found on our website at www.icm2010.org.in. A list of satellite conferences that are being planned is also available at the website.

Detailed instructions for registration, financial aid programmes, as well as information on hotel accommodation, list of invited speakers, lecture programme, cultural programme, etc. will be put on the website as and when they are finalised.

On-line pre-registration began on 15 May 2009 at the icm2010 website. It does not involve any payment. The pre-registered participants will be apprised of new developments by email and will receive reminders of up-coming deadlines. Please do pre-register if you intend to participate: it will be of great help to us in our planning the event.

We look forward to your participation at the ICM 2010 in Hyderabad.

Rajat Tandon
Secretary, Executive Organizing Committee
ICM 2010

HEILBRONN INSTITUTE ANNUAL CONFERENCE

The Heilbronn Institute for Mathematical Research will hold its annual conference at the University of Bristol from 11 to 12 September 2009 starting at lunchtime on the Friday. Lectures, which will be of general interest, will be given by:

- Kevin Buzzard (Imperial College London)
- Henry Cohn (Microsoft)
- Nick Higham (Manchester)
- Frank den Hollander (Leiden)
- Angus MacIntyre (Queen Mary, London)
- Nicolai Vorobjov (Bath)
- Judy Walker (Lincoln, Nebraska)

UK graduate students and postdocs who would like to attend and need support should contact Rebecca Ireland before **31 July 2009** detailing their requirements, enclosing a brief CV and explaining why they cannot get other support. Further details about attendance can be obtained by contacting Rebecca (R.E.A.Ireland@bristol.ac.uk).

THE FIELDS INSTITUTE

The following major programmes are scheduled at the Fields Institute, Toronto:

- *Mathematics in Quantum Information*
  July – August 2009
- *Foundations of Computational Mathematics*
  July – December 2009
- *Quantitative Finance: Foundations and Applications*
  January – June 2010
- *Asymptotic Geometric Analysis*
  July – December 2010
- *Dynamics and Transport in Disordered Systems*
  January – June 2011
- *Discrete Geometry and Applications*
  July – December 2011
- *Galois Representations*
  January – June 2012

See www.fields.utoronto.ca/programs/scientific for links to these and the many other upcoming workshops, conferences, etc.

To be informed of upcoming Scientific Activities, subscribe to the mailing list at www.fields.utoronto.ca/maillist.

7th ISAAC Congress

Imperial College London
July 13-18, 2009

International Society for Analysis, its Applications and Computation

International Math. Union

European Math. Society

London Math. Society

Oxford Centre for Nonlinear PDE

OCCAM
Oxford Centre for Collaborative Applied Mathematics

EPSRC
Engineering and Physical Sciences Research Council

Confirmed Plenary Speakers

Sir John Ball (Oxford)
Louis Boutet de Monvel (Paris)
Brian Davies (London)
Simon Donaldson (London)
Carlos Kenig (Chicago)
Vakhtang Kokilashvili (Tbilisi)
Nicolas Lerner (Paris)
Paul Malliavin (Paris)
Vladimir Maz'ya (Linköping)
Bert-Wolfgang Schulze (Potsdam)
Gunther Uhlmann (Seattle)
Masahiro Yamamoto (Tokyo)

Public Lecture on Nonlinear PDEs (Monday 13 July)

Pierre-Louis Lions (Paris)

Sessions

I.1. Complex variables and potential theory
I.2. Differential equations: complex methods, applications
I.3. Complex-analytical methods in applied sciences
I.4. Value distributions of functions
II.1. Clifford and quaternion analysis
II.2. Methods in Clifford- and Cayley-Dickson algebras
III.1. Toeplitz operators and applications
III.2. Reproducing kernels
III.3. Integral transforms
III.4. Spaces of differentiable functions
III.5. Analytic function spaces
III.6. Spectral theory
IV.1. Pseudo-differential operators
IV.2. Dispersive equations
IV.3. Control and optimisation of evolutionary systems
IV.4. Nonlinear PDE
IV.5. Asymptotic and multiscale analysis
V.1. Inverse problems
V.2. Stochastic analysis
V.3. Coercivity and functional inequalities
V.4. Dynamical systems
V.5. Functional differential equations
V.6. Biomathematics
VI. Others

International Advisory Board

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Contact and Further Information

Michael Ruzhansky, Department of Mathematics, Imperial College London,
180 Queen's Gate, London SW7 2AZ, UK
http://www.isaac2009.org
info@isaac2009.org

Imperial College London

LONDON MATHEMATICAL SOCIETY

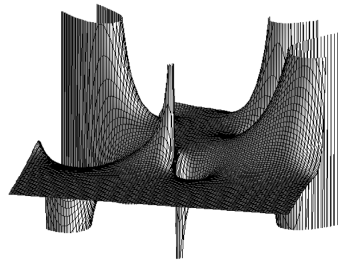
POPULAR LECTURES 2009

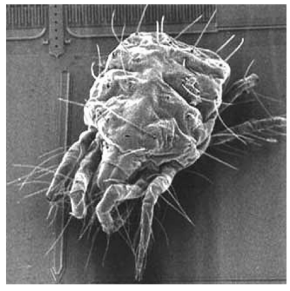
Institute of Education, University of London – Monday 22 June
University of Birmingham – Tuesday 15 September

Dr Nina Snaith
University of Bristol

Hollywood's Hippest Mathematics: random matrices and Riemann zeros

Come and see how physicists helped answer a hundred year old question about prime numbers and how this features in a major Hollywood movie.





Dr Mark Miodownik
King's College London

The Scale of Things

Fleas can jump over 100 times their own height, flies can walk on water and a hamster can survive falling from aircraft without a parachute. Find out about the maths behind *The Scale of Things*.

LONDON Commences at 7.00 pm, refreshments at 8.00 pm, ends at 9.30 pm.
Admission is free, with ticket. **Apply by 15 June.**
BIRMINGHAM Commences at 6.30 pm, refreshments at 7.30 pm, ends at 9.00 pm.
Admission is free, with ticket. **Apply by 10 September.**

Tickets available from Lee-Anne Parker, London Mathematical Society, De Morgan House, 57-58 Russell Square, London, WC1B 4HS (email: leeanne.parker@lms.ac.uk).
A stamped addressed envelope would be appreciated.

The lectures are intended to be suitable for a general audience and no specific mathematical knowledge will be assumed. Although the talks are not primarily intended for professional mathematicians, everyone is welcome and some members may wish to apply for tickets for friends and relatives.

William Benter Prize in Applied Mathematics

Call for NOMINATIONS

The William Benter Prize in Applied Mathematics has been set up by the Liu Bie Ju Centre for Mathematical Sciences (LBJ Centre) of City University of Hong Kong in honor of Mr. William Benter for his dedication and generous support to the enhancement of the University's strength in mathematics.

The Prize

The prize recognizes outstanding mathematical contributions that have had a direct and fundamental impact on scientific, business, finance and engineering applications.

It will be awarded to a single person for a single contribution or for a body of related contributions of his/her research or for his/her lifetime achievement.

The prize will be given once every two years. The prize amount is US$100,000.

Nominations

The right to nominate is open to everyone. Nominations should not be made known to the nominee and self-nominations are not acceptable.

Nominations, with justifications and CVs of the nominees as well as two supporting letters, should be sent to:

Selection Committee
c/o Liu Bie Ju Centre for Mathematical Sciences
City University of Hong Kong
Tat Chee Avenue
Kowloon
Hong Kong

Or **by email to: mclbj@cityu.edu.hk**

Deadline for nominations: 30 September 2009

Presentation of Award

The LBJ Centre will present the prize at an international conference at City University of Hong Kong in June 2010. The prize winner is expected to attend the award ceremony and to present a lecture at the conference .

The Liu Bie Ju Centre for Mathematical Sciences was established in 1995 with the aim of conducting first-class research in applied mathematics and in computational mathematics. As a leading research centre in the Asia-Pacific region, its basic objective is to strive for excellence in applied mathematical sciences. For more information, visit ***http://www6.cityu.edu.hk/rcms/***

香港城市大學
City University of Hong Kong

LBJ

FUNCTION THEORY MEETING

The 2009 One-Day *Function Theory* Meeting will take place at De Morgan House, London, on Monday 7 September 2009. The session will run from 10.30 am (coffee) to around 5.00 pm, and there will be about seven talks. For further details contact Professor J.K. Langley, School of Mathematical Sciences, University of Nottingham (jkl@maths.nott.ac.uk). The meeting is supported by an LMS Conference grant.

OPERATORS AND OPERATOR ALGEBRAS

An international conference on *Operators and Operator Algebras* will be held from 8 to 11 December 2009 at the University of Edinburgh. The following have agreed to speak:

- C. Anantharaman-Delaroche (Orléans)
- W. Arendt (Ulm)
- E. Berkson (Illinois Urbana-Champaign)
- O. Blasco (Valencia)
- G. Brown (Royal Institution of Australia)
- M-J. Carro (Universitat de Barcelona)
- E. Christensen (Copenhagen)
- M. Cowling (Birmingham)
- A. M. Davie (Edinburgh)
- U. Haagerup (Odense)
- M. Junge (Illinois Urbana-Champaign)
- N. Kalton (Columbia, Missouri)
- N. Ozawa (Tokyo and UCLA)
- J. Parcet (CSIC & UA Madrid)
- J. Peterson (Vanderbilt)
- G. Pisier (Texas A&M and Paris VI)
- W. Ricker (KU Eichstätt)
- R. Smith (Texas A&M)
- J-L. Torrea (UA Madrid)
- S. Vaes (KU Leuven)
- A. Volberg (Michigan State)
- S. White (Glasgow)

For further information visit the website at www.maths.gla.ac.uk/~saw/ooae/. The honorary organisers are Alastair Gillespie and Allan Sinclair. Limited support is available for UK-based postgraduate students. The conference is partly supported by an LMS Conference Grant.

MATHEMATICAL MODELS IN ECOLOGY AND EVOLUTION 2009

The 2009 *Mathematical Models in Ecology and Evolution* meeting (MMEE 2009) will be held from 10 to 11 September at the University of Bristol. The meeting will have a Darwinian flavour, in honour of the bicentenary of Darwin's birth, and 150 years since the publication of *The Origin of Species*. While not a mathematician himself, Darwin's ideas find natural expression in the form of mathematical models, allowing further development and refinement of the theory. This two-day meeting will showcase the latest developments of formal models in evolution and ecology, and will include keynote addresses on the mathematical modelling of Darwin's key theories and insights. The keynote speakers are:

- Rob Boyd
  (Department of Anthropology,
  University of California, Los Angeles)
- Alan Grafen
  (Department of Zoology,
  University of Oxford)
- Hanna Kokko (Department of Biological and Environmental Science,
  University of Helsinki)
- Franjo Weissing
  (Department of Biology,
  University of Groningen)

Abstracts of less than 250 words should be submitted via email to James.Marshall@bristol.ac.uk by **12 June 2009**. For further details visit the website at www.cs.bris.ac.uk/mmee2009.

BRITISH TOPOLOGY MEETING

The 24th *British Topology Meeting* will take place in the Department of Mathematics, University of Leicester, from 14 to 15 September 2009. The emphasis of this annual event is on the interactions between topology and other disciplines of pure mathematics. Two keynote lectures will be delivered by Ib Madsen (Aarhus) and Martin Markl (Prague).

The registration fee for regular participants is £20; it will be raised to £40 if you want to attend the conference dinner. Respective costs for British-based postgraduate students are £5 and £10. Speakers and postgraduate students will be given support covering their accommodation and travel.

Further details will become available at the conference webpage http://www2.le.ac.uk/departments/mathematics/extranet/conferences/british-topology-meeting-2009. If you are interested in participating or would like to give a talk contact the organizers J. Hunton (jrh7@le.ac.uk), A. Lazarev (al179@le.ac.uk) and F. Neumann (fn8@le.ac.uk). The meeting is supported by an LMS Conference grant.

NONLINEAR PROBLEMS FOR Δ_p AND Δ

The conference will take place from 10 to 14 August 2009 in Linköping, Sweden. The aim of the conference is to cover p-harmonic functions, ∞-harmonic functions, p-parabolic functions, water waves and related subjects such as various types of generalizations including quasiminimizers, the porous-media equation and the corresponding theories on metric spaces. A major part of the conference will be devoted to four series of three lectures each. The series will be given by the following speakers:

- Michael Crandall (Santa Barbara) *∞-harmonic functions* (preliminary title)
- Juha Kinnunen (Helsinki Tech) *p-parabolic functions*
- Olli Martio (Helsinki) *Quasiminimizers – definitions, constructions and capacity estimates*
- John Toland (Bath) *Nonlinear water waves* (preliminary title)

The following invited speakers have confirmed their participation in the conference:

- Walter Craig (McMaster, Hamilton)
- Ugo Gianazza (Pavia)
- Mark Groves (Saarbrücken)
- Robert Jensen (Loyola, Chicago)
- Nikolay Kuznetsov (St Petersburg)
- Peter Lindqvist (Trondheim)
- Kaj Nyström (Umeå)
- Xiao Zhong (Jyväskylä)

The deadline for registration is **10 June 2009**. For further information email conf-p-laplace@mai.liu.se or visit the website at www.mai.liu.se/TM/conf09.

STOCHASTIC DIFFERENTIAL EQUATIONS

A conference on *Stochastic Differential Equations, Stochastic Partial Differential Equations and Related Topics* will be held from 24 to 28 August 2009 at the School of Mathematics, University of Manchester. Stochastic differential equations and stochastic partial differential equations is one of the most important, active and rapidly developing key research areas in Probability and Mathematics due to its wide applications in Physics, Chemistry, Biology, Economics and Finance. The aim of this international conference is to bring together experts around the world in this area to report recent progresses and discuss further developments. See

the website at www.mims.manchester.ac.uk/events/workshops/SDEs_SPDEs09.html for the confirmed list of speakers. The conference organizers are Tusheng Zhang, Ron Doney and Markus Riedle. To register for this conference contact Lucy van Russelt (lucy.vanrusselt@manchester.ac.uk). For further details contact Professor Tusheng Zhang (tusheng.zhang@manchester.ac.uk) or visit the website. The meeting is supported by a Marie Curie Initial Training Network, MIMS and the LMS.

STOCHASTIC DELAY DIFFERENTIAL EQUATIONS

A research meeting on *Numerical and Analytical Solution of Stochastic Delay Differential Equations* will take place from 7 to 10 September 2009 at the Department of Mathematics, University of Chester. The main speakers are:

- John Appleby (Dublin City University)
- Evelyn Buckwar (Heriot-Watt University, Edinburgh)
- Bernt Øksendal (University of Oslo)
- Xuerong Mao (University of Strathclyde)
- Michael Scheutzow (Technische Universität Berlin)
- Michael Tretyakov (University of Leicester)
- Robert Schlicht (Helmholtz-Zentrum München)
- Markus Riedle (University of Manchester)

The workshop is organised by the Leverhulme Research Network. The Network, based in Chester and led by Professor Neville Ford, has been established for three years from 2008 to 2011, with the aim of bringing together experts from the areas of mathematical modelling, mathematical analysis, numerical and computational methods and stochastic analysis of functional differential equations. This is the second of four network workshop meetings to enable methodologies to be shared and new working methods and collaborations to be established.

Scientific queries to: Neville Ford (njford@chester.ac.uk). Other queries to Nicola Williams (nicola.williams@chester.ac.uk). For further details visit the website at www.stochasticdelay. org.uk.

NUMERICS FOR CONTROL AND SIMULATION

A workshop on *Numerics for Control and Simulation* will be held on 17 June 2009 at the School of Mathematics, University of Manchester. The goals of this workshop are to examine the use of low-rank solutions of matrix equations in systems and control applications, discuss recent developments in algorithms for computing them, and review applications in model reduction and simulation of large-scale systems. The speakers are:

- Peter Benner (TU Chemnitz)
- Daniel Kressner (ETH Zürich)
- Karl Meerbergen (KU Leuven)
- Valeria Simoncini (Bologna)
- Danny C. Sorensen (Rice University)
- Tatjana Stykel (TU Berlin)
- Paul Van Dooren (Catholic University of Louvain)

Deadline for registration (£15) is **31 May 2009**. Travel and subsistence support is available for seven UK-based PhD students. The organizers are: Younes Chahlaoui (CICADA, University of Manchester) and Nick Higham (School of Mathematics, University of Manchester). For further information visit the website www.maths.manchester.ac.uk/~chahlaoui/NCS09/NCS09.htm. The workshop is supported by an LMS Conference grant, CICADA and MIMS.

EUROPEAN POSTGRADUATE FLUID DYNAMICS CONFERENCE

The third European Postgraduate Fluid Dynamics Conference will take place from 13 to 16 July 2009 at the University of Nottingham. The organisers aim to bring together postgraduate students in fluid dynamics from across Europe in order to facilitate the sharing of information and development of new partnerships. Plenary talks will be given by:

- Andrew Fowler
  (Oxford)
  Sub-glacial fluid mechanics
- Jacques Magnaudet
  (IMFT, Toulouse)
  Wake instability and bubbles' migration
- Tim Pedley
  (Cambridge)
  Micro-organisms' swimming
- David Quéré
  (ESPCI, Paris)
  Self-propelling drops

Registration and attendance are welcomed by all within fluid dynamics, whether focused on analytical, numerical or experimental aspects. Places are limited and will be awarded in the order of registration, both for UK and EU students. For more information and registration visit the website at www.epfdc.org.uk. The conference is supported by an LMS Conference grant and EUROMECH.

HARMONIC MAP FEST

A *Harmonic Map Fest* in honour of John C. Wood will be held from 7 to 10 September 2009 at the University of Cagliari, Italy. The main speakers will be:

- P. Baird (Brest)
- F. Burstall (Bath)
- S. Dragomir (Potenza)
- F. Hélein (Paris)
- D. Kotschick (Munich)
- E. Musso (Aquila)
- Y. Ohnita (Osaka)
- L. Ornea (Bucharest)
- F. Pedit (Tübingen and Amherst)
- M. Rigoli (Milan)
- H. Urakawa (Tohoku)

The participation fee is €60 for students and €120 for others. For further information, including accommodation details and the registration form, visit the conference website at www.matematik.lu.se/JCW-60/ or email the organizers at jcw09@univ-brest.fr. A limited number of student rooms are available.

ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES

DYNAMICS OF OUTER PLANETARY SYSTEMS

A Satellite Meeting at the Royal Observatory, Edinburgh

9–11 November 2009

in association with the Newton Institute programme entitled
Dynamics of Discs and Planets
(12 August – 18 December 2009)

Organisers: A. Morbidelli (Observatory of Nice), R. Nelson (Queen Mary, London), G.I. Ogilvie (Cambridge), K. Rice (Edinburgh co-chair), J.M. Stone (Princeton) and M. Wyatt (Cambridge co-chair).

Theme of conference: The discovery of over 300 extrasolar planets has led to significant breakthroughs in our understanding of how planetary systems both form and evolve. Although observational detection biases mean that the majority of these planets are close to their stars ($\ll$10 AU), the recent imaging of planets between 10 and 120 AU around the stars Fomalhaut, HR8799 and beta Pictoris shows that the parameter space of outer planetary systems is now opening up. These regions are also being explored by studies of debris disks that provide evidence for planetesimal belts at large distances, as well as indirect evidence for the formation of planet-sized objects, and set invaluable constraints on planet formation processes at these distances. This 3-day workshop seeks to focus on the dynamics and physical processes that affect how the outer regions ($\gg$10 AU) of planetary systems form and evolve, so as to consolidate the theoretical underpinning of this frontier of extrasolar planetary science.

We plan a roughly equal mix of invited review and contributed talks, with plenty of time for discussion, covering topics including: overview (observational constraints, Solar System), outer planets (formation, evolution, stability, circumplanetary environment), outer planetesimals and dust (formation, evolution, interactions with planets).

Further information and application forms are available from the web at: www.newton.ac.uk/programmes/DDP/ddpw03.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 July 2009**.

ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES

NEW TOPICS AT THE INTERFACE BETWEEN PROBABILITY AND COMMUNICATIONS

11–15 January 2009

in association with the Newton Institute programme entitled
Stochastic Processes in Communication Sciences
(11 January – 2 July 2010)

Workshop organisers: Venkat Anantharam (Berkeley) and François Baccelli (INRIA Paris – Rocquencourt).

Workshop programme committee: David Aldous (Berkeley); Sergey Foss (Heriot-Watt); Bruce Hajek (Illinois); Takis Konstantopoulos (Heriot-Watt); Sean Meyn (Illinois); Andrea Montanari (Stanford) and John Tsitsiklis (MIT).

Scientific theme: This is the inaugural workshop of the programme on *Stochastic Processes in Communication Sciences*. It brings together several leading experts studying problems in the modern communication sciences using stochastic techniques. The interplay between these fields has been enormously fruitful over the last couple of decades, with stochastic techniques making an impact on the development of communication systems and problems in communications leading to new developments in the theory of stochastic processes. The aim of the workshop is to survey these developments and to map out possible pathways for the synergistic evolution of these fields in the future.

Further information and application forms are available from the web at: www.newton.ac.uk/programmes/SCS/scsw01.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 August 2009**.

RECORDS OF PROCEEDINGS AT MEETINGS

ORDINARY MEETING

held on *Friday 27 February 2009* at Imperial College London. About 70 members and visitors were present for all or part of the meeting.

The meeting began at 3.30 pm, with the President, Professor E.B. DAVIES, FRS, in the Chair.

Five people were elected to Ordinary Membership: C.G. Boehmer, S. Launois, E. Méndez-Escobar, K. Ohkitani, K. Pravda-Starov; two people were elected to Associate Membership: C.D. Cantwell, D.J. Kenneally; and two people were elected to membership under reciprocity arrangements with the societies shown: G. Infante (Unione Matematica Italiana), S. Thomas (American Mathematical Society).

The Records of the Proceedings of the Society Meetings held on 21 November 2008, and 12 and 13 December 2008, were signed as correct records.

No members signed the book or were admitted to the Society.

Dr D.E. BUCK, Council member and member of the Women in Mathematics Committee, gave an introduction to the lectures with a brief description of Mary Cartwright and her achievements. She then introduced the lecture given by Professor S.K. Donaldson, FRS, on *A spectator's commentary on symplectic topology*.

After tea, Dr Buck introduced the Mary Cartwright Lecture given by Professor D. McDuff, FRS, on *Symplectic embeddings of 4-dimensional ellipsoids*.

The President then thanked the organisers of the Meeting for arranging an excellent and well-attended event, and declared the Meeting closed.

After the meeting, a dinner was held at the Wodka restaurant.

This is the official record of the Mary Cartwright meeting previously reported upon in the May *Newsletter*. – *Ed.*

WOMEN IN MATHEMATICS DAY 2009

Report

The annual *Women in Mathematics Day* was held on Friday 24 April at De Morgan House. There was an audience of 50, many of whom were young mathematicians, including research students, students on graduate courses,

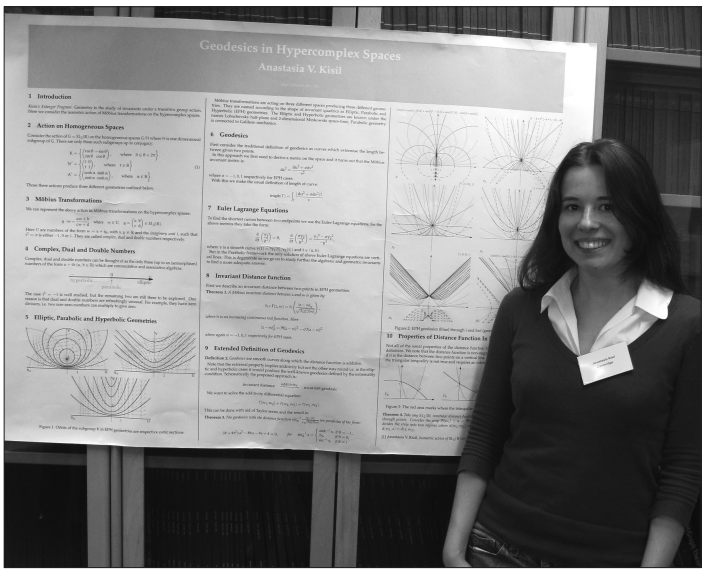
undergraduates and a few sixth-formers. The programme consisted of talks and posters presented by women mathematicians at various stages of their careers.

In the morning, there were three inspiring talks which covered a wide range of areas of mathematics. The first speaker was Helen Webster (Met Office), who spoke on atmospheric dispersion modelling. This was followed by Beatrice Pelloni (Reading), whose topic was generalised Fourier transforms and boundary value problems. The final morning speaker was Eugenia Cheng (Sheffield), who gave an introduction to higher-dimensional category theory. All three speakers gave interesting and well-judged talks, accessible to a general mathematical audience.

These talks were followed by lunch, where there was the opportunity to chat informally to the speakers and to other participants. There was also a poster session at lunch time. The standard of posters was high, and participants had the difficult task of selecting their favourite and voting for it in the poster competition.

In the afternoon, there were excellent talks from six postgraduate students: Joanne Dunster (Nottingham), Olivia Caramello (Cambridge), Nneoma Ogbonna (Heriot-Watt), Rebecca Torrey (Kings College London), Erida Gjini (Glasgow) and Jenny Bloomfield (Heriot-Watt). The talks covered many different areas of mathematics, including mathematical biology, topos theory, oil-well modelling and number theory.

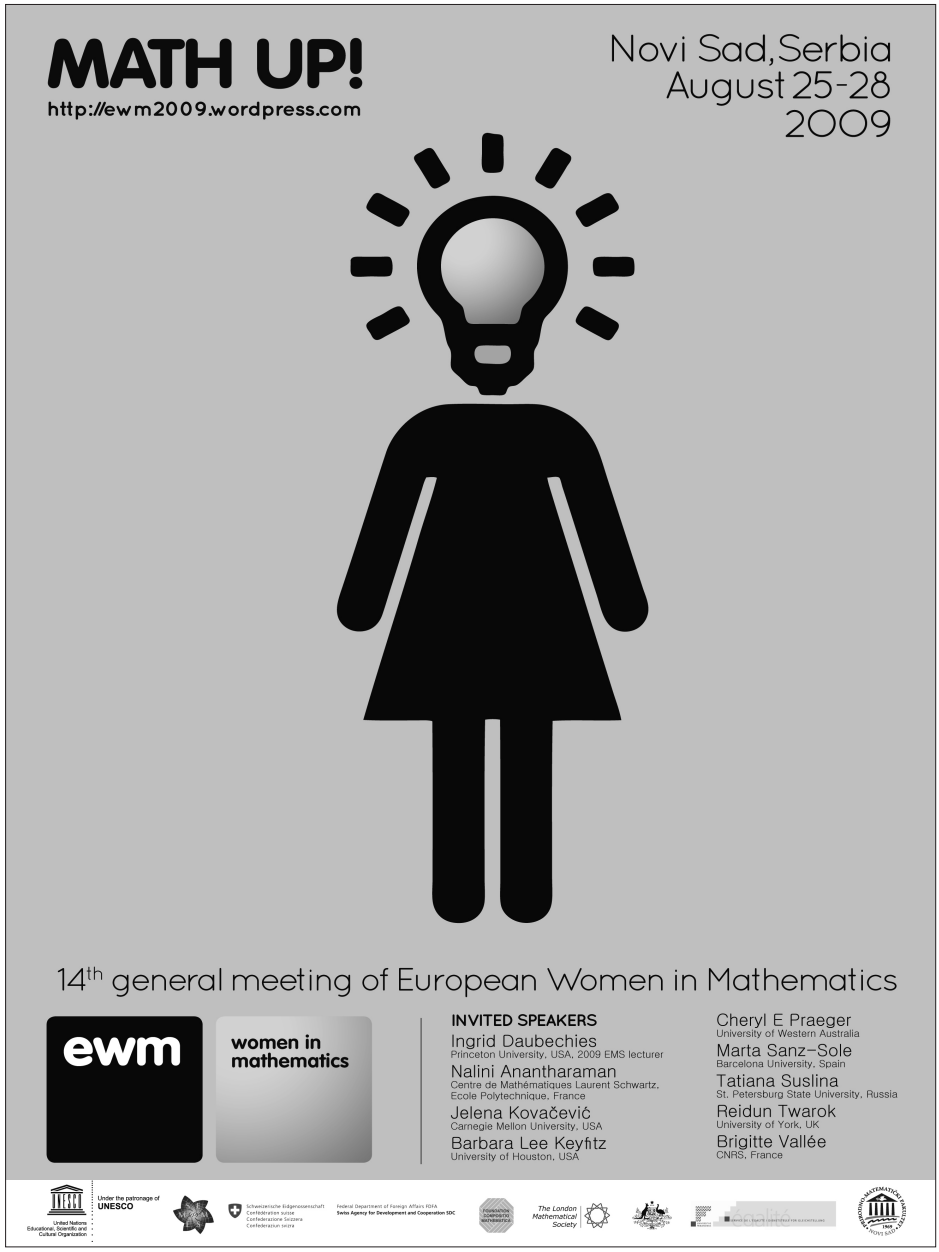
The day ended with the award of a £50 book token to Anastasia Kiril (Cambridge), who won the poster competition for her poster *Geodesics in hypercomplex spaces*. After the event, several participants went to a nearby restaurant for an early supper, where the discussions continued.



Anastasia Kiril with the winning poster

Throughout the day, there was a high level of enthusiasm and interaction, and I for one enjoyed it immensely. Many thanks are due to Isabelle Robinson (LMS Group Head, Society & Grants) for her very efficient organisation of the event.

Susan Pitts
Scientific Organiser



RESONANCE OSCILLATIONS AND STABILITY OF NONSMOOTH SYSTEMS

The international workshop on *Resonance Oscillations and Stability of Nonsmooth Systems* will be held from 16 to 25 June 2009 at Imperial College, London. The object of the meeting is to explore the current power and open problems of the theory of resonance oscillations and stability of nonsmooth systems by bringing together different research groups working in the field as well as by organizing discussions with relevant industrial experts. The first part of the workshop (four days: 16–19 June) will be formal, with a full schedule of invited and contributed talks. In contrast, the second part (four days: 22–25 June) will be more informal, with discussion sessions on specific problems aimed at developing new research collaborations. Invited speakers include:

- Samir Adly (Limoges, France)
- Marat Akhmet (Ankara, Turkey)
- Vladimir Babitsky (Loughborough, UK)
- Soumitro Banerjee (Kharagpur, India)
- Iliya Blekhman (St Petersburg, Russia)
- Chris Budd (Bath, UK)
- David Chillingworth (Southampton, UK)
- Gábor Csernák (Budapest, Hungary)
- Alexander Fidlin (Karlsruhe, Germany)
- John Hogan (Bristol, UK)
- Alexander Ivanov (Moscow, Russia)
- Mike Jeffrey (Bristol, UK)
- Tassilo Kupper (Köln, Germany)
- Ekaterina Pavlovskaia (Aberdeen, UK)
- Nikolay Perestyuk (Kiev, Ukraine)
- Friedrich Pfeiffer (Munich, Germany)
- Geraldo Silva (S.J. Rio Preto, Brazil)
- Marco Antonio Teixeira (Campinas, Brazil)
- Keith Worden (Sheffield, UK)
- Zhanibay Zhusubaliyev (Kursk, Russia)

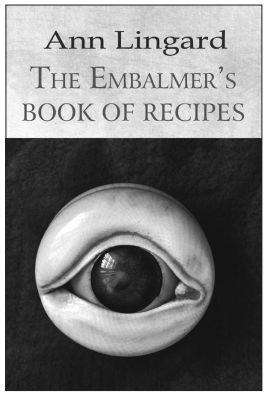
For further information visit the website at www.ma.ic.ac.uk/~omakaren/rosns2009. The workshop is being partially supported by EPSRC and an LMS Conference grant.

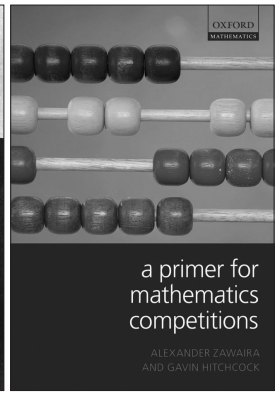
REVIEWS

The Embalmer's Book of Recipes by Ann Lingard, IndePenPress, 2009, 310 pp, £8.99, ISBN 978-1-90-671017-0.

This is an intricate and absorbing novel, set mainly in Cumbria, about time, memory and prejudice. It is being mentioned here because I felt it worth drawing attention to this sympathetic and convincing portrayal of one of the main characters, Lisa Wallace, a mathematician (she is also achondroplasic). The author acknowledges guidance from mathematicians including Ian Stewart, Uwe Grimm and Ian Porteous: Lisa as mathematician rings true, as does the mathematics in the novel (which includes a conference on mathematics and art), and it is refreshing to read a novel which integrates mathematics seamlessly into its themes. The story is not always comfortable but I found it rewarding and Lisa has become one of my favourite fictional mathematicians. The author runs SciTalk – a web resource for connecting writers and scientists – and this novel, very much the author's own but influenced by fruitful conversations with practitioners, exemplifies the value of such a resource. Background information on the novel can be found at www.annlingard.com/ebor.htm.

Tony Mann
University of Greenwich





A Primer for Mathematics Competitions by Alexander Zawaira and Gavin Hitchcock, Oxford University Press, 2009, 344 pp, £50.00 ISBN 978-0-19-953987-1 (hbk), £22.50 ISBN 978-0-19-953988-8 (pbk).

I approach the daunting but enjoyable prospect of reviewing this book as someone who is a passionate follower of mathematics, and who relishes any challenge or interesting problem that may crop up. On the other hand, I am only a year into the A-Level course. As such, I will probably not be able to give this book the constructive analysis it deserves, but I shall do my best to deliver a thorough and fair description of what I consider to be a captivating read.

The opening chapter on geometry has both a clever and imaginative blend of familiar formulae and new, exciting little rules that can be applied to an interesting variety of problems. The first half of this chapter is very fluent and easy to follow. The second half is somewhat more complex! This is an effective start to the book, providing a hook to encourage the 'must read on' mania. The following chapter on inequalities and induction introduces interesting and extremely powerful ways of making algebraic proofs that can be applied to anything, simply from a few basic axioms and seemingly 'elementary facts'. However, I remain rather baffled by Section 2.3 on harder inequalities.

Chapter Three, on Diophantine Equations, is the most difficult chapter of the book, and yet the most gripping. It is extremely well-constructed; refreshing alongside the more 'traditional' mathematical topics such as Geometry, Algebra and Number Theory.

Chapter Four covers Number Theory. This particular aspect of mathematics is the reason why I fell in love with the subject. It was exciting to see the wide extent of theorems here – particularly the elegant Chinese Remainder Theorem – and to sample the wide range of

problems given at the end.

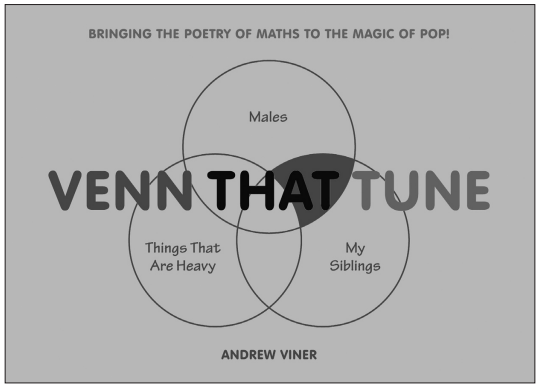
I have used trigonometry a great deal during my mathematical journey. I was, therefore, pleasantly surprised to find myself ignorant of many of the new trigonometric identities in the fifth chapter. At around page 199, the chapter quickly becomes more difficult, with quite a few identities to try and memorise! (I don't think I will make it to paradise! - see page 203.) The next chapter, on sequences and series, is quite brilliant. It is well structured, has great depth and is one of the easiest chapters to understand. It is packed with a wide variety of juicy problems which one felt almost 'compelled' to solve.

Chapter Seven, on the Binomial Theorem takes a rather difficult topic and makes it easy to interpret. My only struggle was in understanding the proof of the Binomial Theorem; however, I had no trouble applying it afterwards to the problems offered. The chapter has left me 'wanting more'! The next chapter, on combinatorics, is one of the most interesting chapters of the whole book. The depth to which the reader is plunged in this chapter is not only justified, but welcome. The way in which it is presented and employed here has given me an entirely new look on the subject helping me to solve problems which have been irking my mind for some time. The most interesting part of the chapter concerned the pigeon-hole principle which was presented as a fun and dynamic concept.

The final chapter is entitled 'Miscellaneous Problems'. Why isn't every mathematical examination paper like this? The huge range of subjects covered in this last section did not perturb me in the slightest; on the contrary, I found it to be a nice touch after going into so much depth on a variety of subjects, although Problem 7 did catch me out!

This book is brilliant. I enjoyed its structure, and how it all seems to fit together, so that readers can make their own interpretation of it, even if the mathematics is unfamiliar to them in certain places. The cartoons are a welcome interlude from the hard-core mathematics, giving the reader a funny take on an aspect of mathematical history or culture. Speaking of mathematical culture, one of the key authors of this book is Zimbabwean, showing that mathematical education there is still strong despite the political turmoil. Finally this book will prepare Olympiad hopefuls for 'The Intermediate Challenge of Mathematical Olympiads'. The reader will certainly be ready. But, most importantly, primed!

Sam Tickle
Year-10 Mathematics Student



Venn That Tune by Andrew Viner, Hodder & Stoughton, 2008, 128 pp, ISBN 978-0-34-095567-3.

The cover for this book holds a Venn diagram containing three intersecting sets: Males, My Siblings and Things That Are Heavy, with the appropriate intersection marked. That is,

$$\text{Males} \cap \text{My Siblings} \cap (\text{Things That Are Heavy})^{c}$$

If that raised a chuckle then this book is for you.

The book is a collection of 112 charts and diagrams, featuring Venn diagrams and

several other types, each of which can be interpreted as the title of a pop song. In this book 'pop song' means a song that has featured in the UK Top 40 chart and this provides a broad mix of songs ranging from the 1950s to today. The solutions to the puzzles are, as tradition dictates, in the back of the book. As well as the answer, each solution gives the artist and date that the song was in the charts, often more than one artist and date. Several also give some explanation of the mathematics behind the diagram.

The result is a collection of light logic puzzles using gentle lateral thinking which are mostly witty and amusing. This is not a book for reading from cover to cover, although I diligently did so for the purposes of this review (I was the annoying person in the train carriage with the giggles). Rather, this is an excellent book to dip into. I have showed this book to a few friends and most have responded very positively to it. One friend, who I know to dislike 'pointless logic puzzles' (and a physicist, to boot), responded very badly to the book, regarding it as silly and pointless, so I would not advise it for people who don't like a bit of lateral thinking. Most people (mathematicians and non-mathematicians alike) who have seen my copy of the book responded very well.

In many cases, a song I remember from childhood was revealed to be a cover version of an older song. Featuring songs that have charted in multiple decades is a good option for increasing the range of potential audience for the book. Additionally, some of the songs either have been subsequently formed into or are drawn from a popular saying and so I found I was able to answer some of the problems without knowing the songs themselves. Nevertheless, I found there were a number of song titles for which I did not know the song, so no amount of puzzling revealed the answer. A couple of people I showed the book to exhibited an almost complete lack of awareness of popular music and so found the book very unexciting and I relate this as a warning. You do not need an intimate knowledge of music to appreciate this book but if you do not know some of the most well-known songs of the latter half of the 20th Century you may struggle to gain a full appreciation.

Physically, this is small and portable for a hardback book with 128 pages of slightly smaller dimensions than the LMS *Newsletter*. Well-formatted, clean diagrams give the book an attractive visual appeal.

The author Andrew Viner is a comedy, animation and children's writer for television and radio and has a degree in electronic engineering. Mathematical consultancy for the book is credited to Dr Nick Gilbert of Heriot-Watt University. At the end of the book the author encourages the reader to draw their own diagrams and indeed people have been doing just that. Seemingly separately from this book there is a phenomenon called Song Charts which also involves charts and diagrams to illustrate songs. There is a Flickr group dedicated to this (www.flickr.com/groups/songchart) and you may have received an email circular featuring these. As for *Venn That Tune*, there is a website (www.vennthattune.com) and audience participation is encouraged via a Facebook page (search for Venn That Tune). The idea for the book originated on the author's blog, which is an amusing read (smaller-than-life.blogspot.com).

The website for the book proposes two sets – People Who Like Music and People Who Like Venn Diagrams – and suggests that people who find themselves in the intersection of these sets will like this book. I suggest the second set is a little restrictive; I would suggest that if you like logic puzzles, have a sense of humour and a passing familiarity with some popular music then you should find this book amusing. I certainly enjoyed it thoroughly.

Peter Rowlett
School of Mathematical Sciences
University of Nottingham

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).

JUNE 2009

8 Weak Solutions of the 3D Euler Equations Meeting, Warwick (381)
8-9 Lattice-Boltzmann Methods LTCC Intensive Course, London (379)
8-9 Reflections in Nonlinear Mechanics Meeting, Bath (381)
8-11 British–Nordic Congress of Mathematicians, Oslo (380)
9 Inaugural Christopher Zeeman Medal Lecture, London (381)
9-12 Mathematics of Finite Elements and Applications Conference, Brunel University (378)
9-15 Algebraic Topology, Group Theory and Representation Theory Conference, Isle of Skye (376)
10-11 Bullough Memorial Symposium, Manchester (382)
12 Rank Gradient of Groups Meeting, London (381)
15-19 Nonlinear PDE and Free Boundary Problems Minicourses, Warwick (381)
16 Patterns, Nonlinear Dynamics and Applications Meeting, Surrey (381)
16-25 Resonance Oscillations and Stabillity of Nonsmooth Systems Workshop, Imperial College London (382)
17 Numerics for Control and Simulation Workshop, Manchester (382)
19-20 The Enigma of Enceladus: Observation and Modelling Workshop, Leicester (381)
22 LMS Popular Lectures, London (382)
22-24 Postgraduate Combinatorial Conference, London (381)
22-26 Quantum Chaos LMS–EPSRC Short Course, Nottingham (380)
22-26 Representation Theory and Lie Theory Workshop, INI, Cambridge (376)
22-27 EWM Summer School for PhD Students, Turku, Finland (380)
29-3 July Discrete Systems and Special Functions Workshop, INI, Cambridge (375)
29-3 July Stochastic Analysis and Finance Workshop, City University of Hong Kong (379)
29-10 July de Brun Workshop on Computational Algebra, Galway, Ireland (381)

JULY 2009

1-3 Design Theory and Applications Conference, National University of Ireland, Galway (379)
1-3 Game Theory SING5, Amsterdam, The Netherlands (379)
1-3 Graph Theory Workshop, Bristol (380)
3 LMS Meeting, London (382)
3-16 Proof Theory and Constructivism Symposium, Leeds (380)
4-5 Proofs and Computations Conference, Leeds (380)
5-8 Algebra and Analysis around the Stone–Čech Compactification Conference, Cambridge (380)
5-10 British Combinatorial Conference, St Andrews (378)
5-10 Set Theory Meeting, Będlewo, Poland (380)
6-10 PRIMA Congress, Sydney, Australia (380)
6-10 26th Journées Arithmétiques, Saint-Étienne, France (379)
6-16 Combinatorial and Geometric Structures in Representation Theory, LMS Durham Research Symposium, Durham (381)
13-16 European Postgraduate Fluid Dynamics Conference, Nottingham (382)
13-17 Probabilistic Combinatorics LMS–EPSRC Short Course, Cambridge (381)
13-18 7th ISAAC Congress, London (382)
14-18 Imprecise Probability: Theories and Applications Symposium, Durham (381)
15 LMS SW & South Wales Regional Meeting, Southampton (382)

15-16 Sparse Matrices for Scientific Computation Meeting, Abingdon, Oxford (377)
20-24 The Cardiac Physiome Meeting, INI, Cambridge (378)
20-24 Probability at Warwick Young Researchers Workshop, Warwick (379)
20-30 New Directions in the Model Theory of Fields, LMS Durham Research Symposium, Durham (381)
25-30 International Mathematics Competition, Budapest, Hungary (381)
26-31 Geometry, Field Theory & Solitons, LMS–EPSRC Short Course, Leeds (381)
27-31 Stochastic Processes and their Applications Conference, Berlin, Germany (380)
27-31 Non-Abelian Fundamental Groups in Arithmetic Geometry Introductory Workshop, INI, Cambridge (379)

AUGUST 2009

1-15 Groups St Andrews 2009, Bath (372)
3-7 Logic and Mathematics 09, York (379)
3-8 Pan African Congress of Mathematicians, Ivory Coast (378)
3-8 ICMP09, Prague, Czech Republic (380)
9-14 Model Theory Meeting, Będlewo, Poland (380)
10-14 Nonlinear Problems for Δ_p and Δ Conference, Linköping, Sweden (382)
17-21 The Dynamics of Discs and Planets Conference, INI, Cambridge (378)
24-28 Stochastic Differential Equations, Stochastic Partial Differential Equations and Related Topics Conference, Manchester (382)
24-28 Anabelian Geometry Workshop, INI, Cambridge (379)
25-28 European Women in Mathematics General Meeting, Novi Sad (382)

SEPTEMBER 2009

3-5 Modern Mathematical Methods in Science and Technology Conference, Poros Island, Greece (380)
7 Function Theory Meeting, London (382)
7-8 Opening Windows on Maths & Stats, Open University (380)
7-10 Harmonic Map Fest, Cagliari, Italy (382)
7-10 Numerical and Analytical Solution of Stochastic Delay Differential Equations Meeting, Chester (382)
10-11 Mathematical Models in Ecology and Evolution Meeting, Bristol (382)
11-12 Heilbronn Institute Annual Conference, Bristol (382)
11-17 Models in Developing Mathematics Education, Dresden, Germany (380)
14-15 British Topology Meeting, Leicester (382)
15 LMS Popular Lectures, Birmingham (382)
16 LMS Midlands Regional Meeting, Leicester
28-30 Planetesimal Formation Workshop, INI, Cambridge (379)

NOVEMBER 2009

9-11 Dynamics of Outer Planetary Systems Conference, INI, Cambridge (382)
20 LMS AGM and Presidential Address, London

DECEMBER 2009

4-6 LMS–Belgian Mathematical Society joint meeting, Leuven
8-12 Operators and Operator Algebras Conference, Edinburgh (382)

JANUARY 2010

11-15 New Topics at the Interface Between Probability and Communications Workshop, INI, Cambridge (382)

AUGUST 2010

19-27 International Congress of Mathematicians 2010, Hyderabad, India (382)

W.S. JEVONS

LMS member 1866–1870, 1879–1881

Maull & Co., London (August 1877)

William Stanley Jevons, MA, FRS
Fellow of University College London
Professor of Political Economy, University College London
Professor of Logic and Mental and Moral Philosophy, Owens College, Manchester
Cobden Professor of Political Economy, Owens College, Manchester