



LONDON MATHEMATICAL SOCIETY

NEWSLETTER

No. 414 May 2012

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NEWSLETTER ONLINE:

Go to [www.lms.ac.uk/
newsletter](http://www.lms.ac.uk/newsletter)

LMS COUNCIL DIARY

30 March 2012

A personal view

We began the meeting by confirming and welcoming Chris Mulvey as the new Member-at-Large on Council. Chris, whose term will last until November 2012, is filling the vacancy created by the resignation of Marco Marletta.

Under President's business, Graeme reported on the successful seminar *Mathematics Matters – A Crucial Contribution to the Country's Economy* held as part of the National Science and Engineering Week, and arranged by the Council for Mathematical Sciences (CMS) in collaboration with the Parliamentary and Scientific Committee. This is the first time that the mathematical community has had such an event in Parliament and it was attended by a wide range of people from a variety of backgrounds. The full programme together with rather good photographs (including one of Graeme; see page 17) can be found on the CMS website. Graeme also reported on the Christopher Zeeman lecture given by Professor John Barrow at the Royal Society. Professor Barrow chose a topical theme – *Maths, Sports and the Olympics* – and there was a full house with a gratifying

number of young mathematicians in the audience.

Much of the morning was taken up with financial matters. Having considered the half-year financial review, and approved various items of expenditure, including a grant of £2,500 to The Archive Trust for Mathematical Sciences and Philosophy for the archiving of recordings of talks and lectures by leading British mathematicians, we were given an extremely informative report by the Treasurer, Rob Curtis, on the past performance of the Society's investments. Moving from the past to the future, we next discussed the strategic directions and priorities for each of the main committees of Council. While most of these were centred on concrete proposals, one did allow us to indulge in a certain flight of fancy: the proposal to investigate the viability of having an LMS research retreat. While this is, to quote the Treasurer, a "pipe dream" at the present time, the idea of an 'Oberwolfach' in, say, the Peak District was, not surprisingly, agreed to be an immensely attractive one, and one that we should at the very least explore.

There were two important items for discussion. The first concerned criteria for LMS membership, the subject arising in the context of the Society's

impending membership drive, and it generated some lively exchanges. While remaining firm that the core aims of the Society – the promotion and extension of mathematical knowledge – must be upheld, we agreed in principle that all criteria for membership should be extended, including those for Associate Membership. Since this would be rather a major change for the Society, we further agreed that the membership would be consulted before any changes are implemented.

The second of the items for discussion was the introduction of an LMS Undergraduate Research Bursaries Scheme (URBS) to succeed the very successful scheme currently managed by the Nuffield Foundation but from which Nuffield is withdrawing in order to concentrate on other (younger) constituencies. As a transitional arrangement for 2013, Nuffield have agreed to provide

matched funding with a new sponsor for mathematics bursaries, with all branding in the name of the new sponsor. Several members of Council reported very positive experiences with the Nuffield Scheme and we were in no doubt that the LMS would be the most appropriate new sponsor. We therefore readily agreed to the introduction of an LMS URBS of 15 bursaries per annum over the next two years, providing Nuffield come up with the matched funding. We also agreed to fund 20 bursaries (LMS alone) in the third year, with the position then being reviewed.

Last month I reported that a letter was in the process of being written to the EPSRC expressing the concerns of pure mathematicians. I can now report that the letter has been sent and a copy is available to read on the LMS website.

June Barrow-Green

LMS Newsletter

www.lms.ac.uk/newsletter

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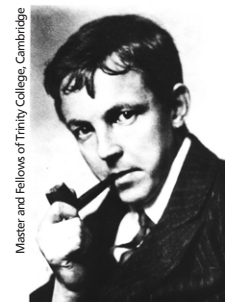
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LONDON MATHEMATICAL SOCIETY

SOCIETY MEETING: HARDY LECTURE Friday 29 June 2012

Old Wilkins Refectory, Gower St, University College London,
London WC1E 6BT (nearest tube: Euston Square)



G.H. Hardy, LMS President
1926–1928 and 1939–1941

- 3.30 Opening of the meeting and LMS business, including the announcement of the 2012 Prize winners (open to all)

Vincent Borrelli (Lyon)
Flat tori in three-dimensional space

- 4.45 Tea/Coffee

- 5.15 Etienne Ghys (CNRS, Lyon) **Hardy Lecture**
On cutting cloth, according to Chebyshev

- 6.30 Reception at De Morgan House, Russell Square.

These lectures are aimed at a general mathematical audience. All interested, whether LMS members or not, are most welcome to attend this event.

A reception will be held at the LMS at 6.30 pm with a dinner afterwards at the English Garden Restaurant, Grange Whitehall Hotel, Montague Street. The cost to attend the dinner will be £35 per person. Those wishing to attend the dinner should contact Elizabeth Fisher (lmsmeetings@lms.ac.uk) **before 20 June**.

There are funds available to contribute in part to the expenses of members of the Society or research students wishing to attend the meeting. The meeting will be preceded by a Graduate Student Meeting.

Contact Elizabeth Fisher (lmsmeetings@lms.ac.uk) for further information.

ANNUAL ELECTIONS TO LMS COUNCIL

The normal way in which nominations to Council are made is via the Nominating Committee, but there is also provision for all members of the Society to make nominations directly. Anyone who wishes to suggest someone for a position as an Officer of the Society or as a Member of Council is invited to inform Professor Caroline Series, who is the current Chair of the Nominating Committee (c.m.series@warwick.ac.uk). Nominations should be received by **Friday 25 May 2012** in order to be considered by the Nominating Committee.

Direct nominations, together with standard biographies, should be sent to the Executive Secretary's office (nominations@lms.ac.uk) to arrive before noon on **1 September 2012**. Such nominations must bear the signatures of the nominator and three seconders and of the nominee. A letter with the relevant names and signatures is sufficient; alternatively a form on which to make such nominations is available from the office on request.

Nominating Committee seeks to maintain a balance in gender, subject area and geographical location when drawing up its list of prospective nominees, and LMS members should bear in mind that it is to the benefit of Council if a wide spread of subject areas are represented.

The slate proposed by Nominating Committee together with other direct nominations received up to that time will be posted on the LMS website in early August for members to see before deciding whether they wish to make any further direct nominations. Further nominations will be posted as they are received.

LMS CONFERENCE FACILITIES

Organising a conference in central London? Meeting rooms and catering are available in De Morgan House. For terms and availability, please call 020 7927 0800 or email roombookings@demorganhouse.co.uk.

LMS RESEARCH WORKSHOPS 2012

In 2012, the LMS Research Meetings Committee has supported two research workshops:

- *Critical Transitions in Complex Systems*, Imperial College, which took place in March
 - *Developments in Coupling*, University of York, which will take place in September
- Research workshops can be held anywhere in the UK, and are an opportunity for a small group of active researchers to work together for a concentrated period, on a specialised topic.

Applications for Future Research Workshops

The LMS Research Meetings Committee considers requests for either full or partial support (for travel and subsistence of participants, and reasonable associated costs) in the range £1,000-£10,000.

Applications should be made via email to the Chair of the Research Meetings Committee, Professor Ulrike Tillmann (rmc.chair@lms.ac.uk) normally at least 12 months prior to the proposed workshop. There is no application form but proposals should be no longer than five pages.

Proposals in PDF or Word format should contain:

- a description of the research area
- the aims and format of the workshop
- possible aims could include:
 - to understand an important new piece of mathematics in an area where the participants hope to make further progress
 - to make progress on a particular problem
 - to combine expertise to shed new light on a specific area
- a list of participants and a budget
- details of proposed location and timing

Applicants may consult Professor Ulrike Tillmann (tillmann@lms.ac.uk) informally about their proposed workshop before making an application.

LONDON MATHEMATICAL SOCIETY MEETING

Poincaré Anniversary

Saturday 19 May 2012; 10.00 am – 5.30 pm

De Morgan House, 57-58 Russell Square, London WC1B 4HS



To mark the 100th anniversary of Henri Poincaré's death, join us for a day of talks which look at the mathematician and the man:

10.00 Arrival and Coffee	2.00 Scott Walter (Poincaré Archives, University of Nancy) <i>Poincaré's Discovery of the Lorentz Group and its Upshot for 20th Century Physics</i>
10.15 Opening of the Meeting	
10.30 Jeremy Gray (OU) <i>Poincaré and the Idea of a Group</i>	3.00 John Stillwell (San Francisco) <i>Poincaré and Topology</i>
11.15 Gerhard Heinzmann (Poincaré Archives, University of Nancy) <i>Poincaré, a Philosopher of Analytic Tradition?</i>	4.00 Tea
12.00 June Barrow-Green (OU) <i>Poincaré's Last Geometric Theorem and its Legacy</i>	4.30 Marc Lackenby (Oxford) <i>The Poincaré Conjecture</i>
12.45 Lunch	5.30 Reception

An exhibition from the Poincaré Archives by Philippe Nabonnand (Poincaré Archives, University of Nancy) will be on display during lunch.

To register, please contact Elizabeth Fisher (lmsmeetings@lms.ac.uk) by **Friday 11 May**. Late registrations for places may still be accepted, subject to availability.

The reception will be followed by a dinner at The Blue Door Bistro, Montague on the Gardens Hotel, at a cost of £35 per person, inclusive of wine. If you would like to attend the dinner, please contact Elizabeth Fisher (lmsmeetings@lms.ac.uk) by **Friday 11 May**.

There are limited funds available to contribute in part to the expenses of members of the Society or research students to attend the meeting. Please contact Elizabeth Fisher (lmsmeetings@lms.ac.uk) for further information.

LMS GRANT SCHEMES

Call for Applications

Applications are invited for the following grants – next closing date **15 May 2012**.

- Conferences and postgraduate research conferences held in the UK (Schemes 1 and 8)
- Celebrating new appointments (Scheme 1)
- Visitors to the UK (Scheme 2)
- Research in Pairs (Scheme 4)
- International short visits with the main focus on Africa (Scheme 5)
- Young British and Russian Mathematicians Scheme (see further details below)

For full details of these grant schemes, and to download application forms, visit the LMS website (www.lms.ac.uk/content/research-grants).

- Applications for the above grant schemes which are received by **15 May 2012** will be considered at a meeting in June.
- Applications should be submitted well in advance of the date of the event for which funding is requested.
- Normally grants are not made for events which have already happened or where insufficient time has been allowed for processing of the application.

Queries regarding applications can be addressed to the Grants Administrators (Sylvia Daly and Elizabeth Fisher, tel: 020 7291 9971/3, email: grants@lms.ac.uk) 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 Scheme

Visits to Russia

Applications are invited from young British postdoctoral mathematicians who wish to spend a few weeks in Russia giving a series of survey lectures on the work of their school.

The LMS is offering grants of **up to £500** to meet the travel costs, while the host should apply to the Russian Academy of Sciences for funding towards local expenses for accommodation and subsistence. Applications to the LMS should include the following:

1. A brief academic case for the visit, including a description of your current research interests, and an outline of your planned work during the visit (no more than one side of A4).
2. A brief CV (no more than one side of A4).
3. A brief budget.
4. An invitation from the host in Russia, which must state explicitly that your accommodation and subsistence expenses will be met by them. This should include provisional dates for the visit.

In exceptional circumstances, applications may be considered from strong research students who are close to finishing their doctorates. Applications should include a strong case and the student should obtain a letter of recommendation from his/her supervisor.

Financial and academic reports will be required after the visit.

Visits to Britain

Under this Scheme, applications may also be made by any mathematician in Britain wishing to host a visit by a young Russian postdoctoral mathematician who wishes to spend a few weeks in Britain giving a series of survey lectures on the work of their Russian seminar.

The LMS is offering grants to the host institution to meet the visitor's actual travel and accommodation costs of **up to £1,500**. Applications should include the following:

1. Name and brief CV of the visitor.
2. A brief description of the course of lectures.
3. A letter or email of agreement from the head of the host department, including the proposed dates of the visit.

Financial and academic reports will be required after the visit. Further details of the Scheme can be found on the LMS website: www.lms.ac.uk/content/international-grants#YBR.

Enquiries should be made to the Grants Administrators: Sylvia Daly and Elizabeth Fisher (tel: 020 7291 9971/3, email: grants@lms.ac.uk).

Grants News

We would like to draw your attention to the following:

Computer Science Small Grants (Scheme 7)

Funding for grants **up to £500** is available to support a visit for collaborative research at the interface of Mathematics and Computer Science either by the grant holder to another institution within the UK or abroad, or by a named mathematician from within the UK or abroad to the home base of the grant holder. The next deadline for applications is **15 May 2012** – please see the website for further details: www.lms.ac.uk/content/computer-science-small-grants-scheme-7.

Childcare Grants

The Society believes that all parents working in mathematics should be able to attend conferences and research meetings without being hindered by childcare costs. Institutions are expected to make provision for childcare costs and parents are encouraged to make enquiries. However, where this is not available, the Society administers a Childcare Supplementary Grants Scheme. Further details can be found on the LMS website: www.lms.ac.uk/content/childcare-supplementary-grants.

Spitalfields Days

Grants of **up to £500** are available to support an LMS Spitalfields Day, which have been run since 1987 and are in honour of the Society's predecessor, the Spitalfields Mathematical

Society (1717–1845). A Spitalfields Day is a one-day meeting, which is usually associated with a long-term symposium on a specialist topic at a UK university. Selected participants, often distinguished experts from overseas, give survey lectures (or other types of lecture accessible to a general mathematical audience) on topics in the field of the symposium. Further details can be found on the LMS website: www.lms.ac.uk/content/spitalfields-days#applications.

Sylvia Daly and Elizabeth Fisher
Grants Administrators

VISIT OF D. PELINOVSKY

Professor Dmitry Pelinovsky (McMaster University, Canada) will be visiting the Department of Mathematical Sciences at Loughborough University from 19 June to 8 July 2012. His main research area is the theory of nonlinear partial differential equations and discrete dynamical systems, with applications to nonlinear waves in fluids, crystals, and atomic gases. During his visit Professor Pelinovsky will give the following seminars:

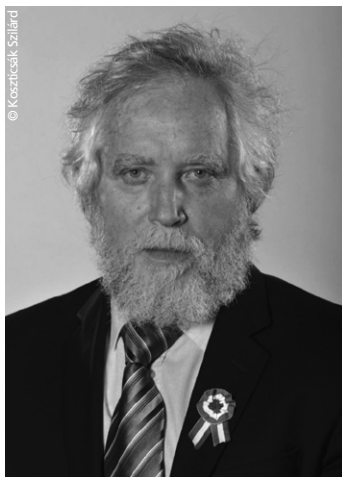
- Loughborough University, 20 June at 2 pm: *Rigorous justification of the short-pulse equation*; contact Karima Khusnutdinova (K.Khusnutdinova@lboro.ac.uk)
 - University of Surrey, 22 June at 4 pm: *Bäcklund transformation and L^2 -stability of NLS solitons*; contact Tom Bridges (T.Bridges@surrey.ac.uk)
 - University of Nottingham, 26 June at 3 pm: *On the validity of the variational approximation in discrete nonlinear Schrödinger equations*; contact Jonathan Wattis (Jonathan.Wattis@nottingham.ac.uk)
- For further details contact Karima Khusnutdinova (K.Khusnutdinova@lboro.ac.uk). The visit is supported by an LMS Scheme 2 grant.

ABEL PRIZE 2012

On 21 March 2012, the President of the Norwegian Academy of Science and Letters, Nils Christian Stenseth, announced that Professor Endre Szemerédi of the Alfréd Rényi Institute of Mathematics, Hungarian Academy of Sciences, Budapest and Department of Computer Science, Rutgers, The State University of New Jersey, USA had been awarded the Abel Prize for 2012 "for his fundamental contributions to discrete mathematics and theoretical computer science, and in recognition of the profound and lasting impact of these contributions on additive number theory and ergodic theory". Professor Szemerédi will receive the Abel Prize from His Majesty King Harald at an award ceremony in Oslo on 22 May.

In announcing this year's prize, the Abel Committee noted that "Discrete mathematics is the study of structures such as graphs, sequences, permutations, and geometric configurations. The mathematics of such structures forms the foundation of theoretical computer science and information theory. Szemerédi was one of the first to realize the importance of theoretical computer science. He has also made deep, important, and influential contributions to many other branches of mathematics."

The Abel Prize recognizes contributions of extraordinary depth and influence to the mathematical sciences and has been awarded annually since 2003. It carries a cash award of NOK 6,000,000 (close to €800,000 or US\$1 million). For more information about the Abel prize visit the website at www.abelprisen.no/en.



Abel Prize Winner: Endre Szemerédi

OSTROWSKI PRIZE

Professor David Preiss, FRS (University of Warwick) has been awarded the 2011 Ostrowski Prize for his 'outstanding achievement in pure mathematics'. Professor Preiss was selected by an international jury. The prize is a major acknowledgement of his work in the field of Analysis. He shares the award with Kannan Soundararajan and Ib Madsen. Professor Preiss is the fourth British-based mathematician to be awarded the prize since its inception in 1989. The Ostrowski Prize is awarded every two years.

More information is available at www.ostrowski.ch.

ROLLO DAVIDSON PRIZE

The Rollo Davidson Trustees have awarded the 2012 Rollo Davidson Prize jointly to Vincent Beffara (ÉNS, Lyon) and Hugo Duminil-Copin (Geneva) for their work on disordered systems in two dimensions, and in particular for their solution of the problem of the critical point of the random cluster model.

The Trust was founded in 1975 in memory of Rollo Davidson, an accomplished mathematician of remarkable potential, and Fellow-elect of Churchill College, Cambridge, who died on the Piz Bernina in 1970. Initial funding from the Trust came from the royalties of two collections of papers published in 1973/74 by friends and colleagues of Rollo. The Trust awards an annual prize for young probabilists and has benefited from the continuing association with the Davidson family. For further information visit the website at www.statslab.cam.ac.uk/Rollo/index.html.

LONDON MATHEMATICAL SOCIETY

NORTHERN REGIONAL MEETING

Wednesday 6 June 2012

CCE-1 002 Lecture Theatre, Business School Building,
Northumbria University

Programme:

- 2.00 Opening of the Meeting
Michael Mackey (McGill University)
A mathematical modeling study of neutrophil dynamics in response to chemotherapy and G-CSF
- 3.15 **Anthony Shannon** (University of Technology, Sydney)
Empirical approaches to the application of mathematical techniques in health technologies
- 4.30 Tea/Coffee
- 5.00 **Eytan Domany** (Weizmann Institute of Science)
Complex dynamics of cellular transcriptional response: how do cells get on the fast lane?
- 7.00 Dinner at The Assembly Rooms

These lectures are aimed at a general mathematical audience. All interested, whether LMS members or not, are most welcome to attend this event.

For further details, to register or to reserve a place at the dinner, email the organisers (maia.angelova@northumbria.ac.uk). The cost of the dinner will be approximately £30, including drinks.

The meeting forms part of a workshop on **Mathematics of Human Biology** from 6 to 8 June. For further details contact the organisers or visit the website at <http://group28.northumbria.ac.uk/biomath>.

There are funds available to contribute in part to the expenses of members of the Society or research students to attend the meeting and workshop. Requests for support, including an estimate of expenses, may be addressed to the organisers.

150TH ANNIVERSARY OF THE LMS

On the 16th of January 1865 the London Mathematical Society held its first meeting. Last autumn, Council agreed to set up a small group to start planning our 150th anniversary celebrations, and we are in the process of dreaming up and working on as many original ideas as we can.

2015 is not very far away, and quite soon we will have to make some firm decisions about which ideas to use. There is still time for you to suggest new ideas, though; the more unusual the better.

Please send them to me at s.huggett@plymouth.ac.uk.

The LMS is one of the oldest mathematical societies in the world, and an anniversary such as this is a very good opportunity for us to strengthen our community and raise our profile.

Stephen Huggett
Chair,

2015 Celebration Committee

JACK ADLER

Dr Jack Adler, who was elected a member of the London Mathematical Society on 12 September 2001, died on 19 February 2012, aged 84.

Trevor Stuart writes: Jack Adler was born in Berlin of Polish parents. However in March 1939 at the age of 11 he came to England by Kindertransport accompanied by his sister, who was aged nine; later, in August 1939, his younger brother, who was aged six, also came to England, having been seen to the train in Berlin by his father. Their parents were never seen again, not escaping but dying in Germany. Thus from the age of 12, at his father's request, Jack had responsibility for his siblings, even though they lived separately in London; Jack himself lived in Brixton in a hostel of the local Jewish community. During intense bombing all three were evacuated, Jack to Horsham and his brother and sister to Wales.

Jack left school at 14, becoming apprenticed to a diamond polisher but he soon started to study academic subjects in his own time. He became a UK citizen in 1947. In due course he was qualified for acceptance on the degree course at Chelsea College, and gained Bachelor's and Master's degrees; this was followed by a PhD degree at the University of London, following study at Chelsea College and Imperial College, with an intervening year at Queen's University, Belfast.

In 1959 Jack was appointed as a Lecturer in the Mathematics Department of Imperial College, being promoted to Senior Lecturer in 1965. He was committed to doing well in his teaching and other departmental activities, including research. In short he was a good academic. Jack spent sabbaticals at the University of Denver, at the Fire Research Station and at the Weizmann Institute of Science. Throughout his academic life, Jack's abiding interest lay in the Theory of Laminar Flames and in Combustion, leading him to the mathematics of Liouville's nonlinear partial differential equation, which is of relevance also for stellar structure. He did fine work in that area. His last paper which was on 'The Spherical Liouville Equation' was published in the *IMA Journal of Applied Mathematics* shortly before he died. It was a pleasure to see that paper in print.

Jack was a popular colleague and friend at the College and in the academic community generally. He retired in 1992, but remained as a Research Fellow until 2007. In private life he was a practising member of the Jewish faith.

Jack is survived by his wife, Messody, by his three children, Eli, Jonathan and Myriam, by his grandchildren and by his sister, Chana, and brother, Erwin. I am very much indebted to Mrs Messody Adler for her generous help with material for this memoir.

JOHN MILLER

Professor B. John Miller, who was elected a member of the London Mathematical Society on 18 December 1958, died on 27 July 2011, aged 83.

Andrew Wirth writes: John graduated BSc in Mathematics from the University of Sydney and was runner-up for the University Medal. He won a 2-year scholarship to the University of Cambridge where he graduated in the Mathematical Tripos. After returning from England, he took up a position as teacher at St Peter's College, Adelaide. From St Peter's he was appointed to a position of lecturer in mathematics at the University of New England in Armidale, NSW. While there he completed a PhD. Appointments as senior lecturer, and later reader, at Canberra University College followed (the College was incorporated into the Australian National University as the School of General Studies in 1960). In 1965 John took up a chair of Pure Mathematics at Monash University, where he led the department's analysis group. He retired in 1989.

His initial research area was analysis, more specifically Banach algebras. Some of this work led him to partially ordered topological groups and then to more general partially ordered sets. After his retirement he turned to Euclidean geometry.

Behind a quiet demeanour John displayed a very dry sense of humour made all the more effective by a straight-faced delivery. Colleagues have remarked that his mathematical writing, just like his speech, was careful and concise.

John showed an early interest in drawing, and he became a prolific painter of water colours, mainly landscapes. John was an ardent supporter of East Timor and steadfastly supported the disadvantaged in many countries. His wife's death earlier in 2011 affected him profoundly and he suffered his fatal heart attack about nine weeks later.

ALAN TURING CENTENARY

Satellite Workshops

As part of Alan Turing Centenary celebrations and linked to a major international gala event (*The Alan Turing Centenary Conference*; www.turing100.manchester.ac.uk),

several satellite workshops for about 15–40 participants each will be held in the morning and afternoon of Friday 22 June 2012 in the Alan Turing Building, University of Manchester, prior to the opening of the conference later in the evening.

It is expected that these workshops will concentrate on more modern developments in mathematics, logic and computer science which are linked to Alan Turing's scientific legacy but deserve a more specialist discussion among interested researchers. If you are interested in organising one of these workshops, contact Mrs Helen Harper, School of Mathematics, University of Manchester (helen.harper@manchester.ac.uk) who may provide you with an easy-to-manage package which includes support for travel and accommodation for three speakers and for research student's travel. These satellite workshops will be supported by an LMS Conference grant.

TURING'S WORLDS

Alan Mathison Turing was born on 23 June 1912 – exactly one hundred years before this weekend meeting (23 to 24 June 2012 at Rewley House, Oxford) which celebrates his life and achievements. Although best known for his work at Bletchley Park in the pioneering days which saw the birth of modern practical computing, Turing had achieved fame well before the Second World War with a seminal account of theoretical computation and his solution to the Entscheidungsproblem.

An Olympic-class marathon runner, whose refusal to conform to the narrow sexual standards of the day led to persecution and an early death, Turing did fundamental research on Artificial Intelligence, Computer Programming and even Mathematical Biology. This weekend attempts a rounded, yet accessible view of Turing, and is offered in conjunction with the British Society for the History of Mathematics. Further information can be found at: www.conted.ox.ac.uk/O11P222MAR.

VISIT OF F. BROCK

Professor Friedemann Brock (American University of Beirut, Lebanon) will be visiting the UK from 13 to 19 June 2012. His research concerns qualitative properties of solutions to elliptic and parabolic PDE, such as their symmetry, monotonicity, multiplicity, and regularity. Professor Brock will give lectures at:

- King's College London, Strand Building, Room S5.20, Thursday 14 June at 3 pm: *Asymptotic estimates and symmetry of ground states*; contact Yuri Safarov (yuri.safarov@kcl.ac.uk)
 - University of Bath, Wolfson Lecture Theatre (Building 4 West, Room 1.7), Friday 15 June at 4:15 pm: *Continuous rearrangements, and symmetry and monotonicity of solutions to some elliptic problems*; contact Roger Moser (r.moser@bath.ac.uk)
 - University of Bristol, Howard House, Monday 18 June at 4 pm: *Weighted isoperimetric inequalities*; contact Isaac Chenchiah (Isaac.Chenchiah@bristol.ac.uk)
- For further information about the visit of Professor Brock contact Isaac Chenchiah. The visit is supported by an LMS Scheme 2 grant.

VISIT OF K. SHINOHARA

Dr Katsutoshi Shinohara (Pontifícia Universidade Católica do Rio de Janeiro) will be visiting the UK from 1 to 23 June 2012. Dr Shinohara's research area is dynamical systems theory, with a focus on generic properties of dynamical systems and the Closing Lemma. During his visit he will give seminars at:

- University of Warwick, 12 June
- University of Surrey, 15 June
- Imperial College London, 21 June

Dr Shinohara will be based at Imperial College London during his stay. For more information contact Dmitry Turaev (dturaev@imperial.ac.uk). The visit is supported by an LMS Scheme 2 grant.

VISIT OF D. CORREA

Dr Diego Correa (Universidad Nacional de La Plata, Argentina) will be visiting the UK from 12 to 25 May 2012. His research is on diverse topics of the gauge/gravity correspondence. In particular, his recent work is concerned with the use of integrability tools and other exact descriptions. Dr Correa will give a lecture on *Cusp anomalous dimension in $N=4$ super Yang–Mills from integrability* on:

- Tuesday 15 May at 4 pm, Room 39/40 AA 04, Dept. of Mathematics, University of Surrey
- Thursday 17 May at 1 pm, Potter Room, Pavilion B, CMS, University of Cambridge
- Thursday 24 May at 4:20 pm, Room G/109, James College, University of York

Dr Correa will be based at the University of Surrey during his stay, hosted by Martin Wolf (m.wolf@surrey.ac.uk). The visit is supported by an LMS Scheme 2 grant.

VISIT OF N. JONOSKA

Professor Natasha Jonoska (University of South Florida at Tampa) will be visiting the UK during June 2012. Her research is on applications of topology and graph theory to problems in biomathematics. Professor Jonoska will give the following lectures:

- Monday 4 June, Tuesday 5 June and Wednesday 6 June at 2 pm, Department of Mathematical Sciences, Durham University, Room CM221: *Mini-course on mathematical models for DNA recombination processes*
- Tuesday 12 June at 12:45 pm, Imperial College, London, Huxley 139: Biomathematics seminar on *Homologous DNA recombination through spatial graphs*
- Friday 15 June at 1:15 pm, York Centre for Complex Systems (YCCSA), University of York: Biomathematics seminar on *Describing self-assembly of nanostructures*

For further details contact Anne Taormina (anne.taormina@durham.ac.uk). The visit is supported by an LMS Scheme 2 grant.

LONDON MATHEMATICAL SOCIETY

MIDLANDS REGIONAL MEETING

Monday 3 September 2012

Institute of Mathematics and Physics, Aberystwyth University
Physics Main Lecture Theatre, Physical Sciences Building,
Penglais Campus

Programme:

- 13.45 Opening of the Meeting
- 14.00 Roland Speicher (Saarland University)
Quantum symmetries in free probability
- 15.00 Dan-Virgil Voiculescu (University of California, Berkeley)
Noncommutative probability aspects of trace-class commutators
- 16.00 Tea/Coffee
- 16.30 Masaki Izumi (Kyoto RIMS)
Group actions on operator algebras
- 17.30 Matthias Christandl (ETH Zürich)
The quantum marginal problem
- 19.30 Dinner at MedRus Conference Centre

These lectures are aimed at a general mathematical audience. All interested, whether LMS members or not, are most welcome to attend this event.

For further details, to register or to reserve a place at the dinner, visit the online-registration website at <http://users.aber.ac.uk/cck/2012LMS/> or contact the organisers (cck@aber.ac.uk). The cost of the dinner will be approximately £30, including drinks.

The meeting is embedded into a workshop on *Quantum Probabilistic Symmetries* from 3 to 7 September. For further details and online registration for the workshop visit the website at <http://users.aber.ac.uk/cck/2012LMS/>.

There are funds available to contribute in part to the expenses of members of the Society or research students to attend the meeting and workshop. Requests for support, including an estimate of expenses, may be addressed to the organisers.



Dana Mackenzie, Winner of the 2012 Joint Policy Board for Mathematics Communications Award

The Universe in Zero Words

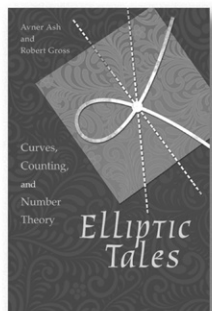
The Story of Mathematics as Told through Equations

Dana Mackenzie

"Dana Mackenzie is a very good writer. I was constantly amazed at his ability to describe complicated mathematics in a few sentences in a way that the average reader—not the average mathematician or the average math major, but the average reader—can understand. This is a very entertaining book."

—David S. Richeson, author of *Euler's Gem*

Cloth \$27.95 £19.95 978-0-691-15282-0



Elliptic Tales

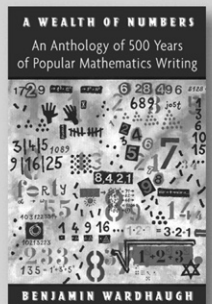
Curves, Counting, and Number Theory

Avner Ash & Robert Gross

"Assuming only what every mathematically inclined freshman should know, this book leads the reader to an understanding of one of the most important conjectures in current number theory—whose proof is one of the Clay Mathematics Institute's million-dollar prize problems. The book is carefully and clearly written, and can be recommended without hesitation."

—Peter Swinnerton-Dyer, University of Cambridge

Cloth \$29.95 £19.95 978-0-691-15119-9



A Wealth of Numbers

An Anthology of 500 Years of Popular Mathematics Writing

Edited by Benjamin Wardhaugh

"This accessible and inviting anthology shows how entertaining it can be to think about mathematics. The selection, organization, and commentaries result in a unique book that is equal to far more than the sum of its parts."

—Paul C. Pasles, author of *Benjamin Franklin's Numbers*

Cloth \$45.00 £30.95 978-0-691-14775-8

ISAAC NEWTON INSTITUTE

Lecture Sponsorships

As part of its 20th anniversary celebrations in 2012, the Isaac Newton Institute will sponsor lectures around the UK given by participants who are visiting the Institute.

As well as paying the travel expenses of the speaker within the UK, the Institute will offer £200 towards the cost of reception (tea and biscuits before and/or wine after) for all attending, £300 towards the cost of a dinner party for selected guests, and up to £100 for overnight accommodation for the speaker.

The names and dates of participants can be found under Invited Participants on the appropriate web pages:

- *The Mathematics and Applications of Branes in String and M-Theory* (3 Jan – 29 Jun), www.newton.ac.uk/programmes/BSM
- *Semantics and Syntax: A Legacy of Alan Turing* (9 Jan – 6 Jul), www.newton.ac.uk/programmes/SAS
- *Topological Dynamics in the Physical and Biological Sciences* (16 July – 21 Dec), www.newton.ac.uk/programmes/TOD
- *Spectral Theory of Relativistic Operators* (23 Jul – 17 Aug) www.newton.ac.uk/programmes/SRO
- *Multiscale Numerics for the Atmosphere and Ocean* (22 Aug – 21 Dec) www.newton.ac.uk/programmes/AMM

The requirements are: 'Newton Institute 20th Anniversary Lecture' should be used in publicity; and we are given the number attending the talk, the names of those attending the dinner and copies of invoices to show that costs were at least the figure we are donating. Detailed arrangements for inviting anyone will rest with your institution.

If there is an interest in doing this in your Institution or you have further questions, please make your intentions known to Christine West (c.west@newton.ac.uk)

and to director@newton.ac.uk at the earliest opportunity. We are keen to have lots of lectures throughout the year and would like as many Institutions as possible to help celebrate our 20th anniversary.

HE CURRICULUM INNOVATION PROJECT

Final few months

The Mathematical Sciences HE Curriculum Innovation Project, operated by the MSOR Network as part of the National HE STEM Programme, will end on 31 July 2012. In these last few months there are several opportunities to engage with this activity.

We are supporting working groups on *Work-related Learning* (led by Edmund Chadwick, Salford), *Group Work* (especially in relation to students with Asperger's Syndrome) (Noel-Ann Bradshaw, Greenwich and Emma Cliffe, Bath), *History of Mathematics in the HE Curriculum* (Tony Mann, Greenwich and Mark McCartney, Ulster) and *Using Statistics Effectively in Mathematics Education Research* (John Marriott, Neville Davies and David Burghes, Plymouth).

We have workshops planned on *Group Work* (Birmingham, 8 May), *Industrial Placements* (Greenwich, 14 May) and *Being a Professional Mathematician* (Greenwich, 15 May). I will be contributing to the *Mathematical Sciences Strand* dissemination workshops in May: 3rd (York); 10th (Manchester); 17th (London); 25th (Birmingham); and 30th (Cardiff). Further workshops are being planned. Please keep an eye on the project web pages (www.mathstore.ac.uk/hestem) for further details as they become available.

This project has supported 33 curriculum development projects at 27 universities. Many of these will be presenting at the *CETL-MSOR Conference 2012* which will take place from Thursday 12 July to Friday 13 July 2012

at the University of Sheffield. The Early-Bird deadline for conference registration is **5 May 2012**. Registration and further details are available via www.mathstore.ac.uk/conference2012.

We have a travel grants scheme available, designed to support individual travel for a seminar speaker to share an innovative curriculum development via a departmental seminar. Additionally, I am available to travel to your institution and deliver a seminar (at no charge) on work that has taken place under this project. This could be on one of a number of topics including the *HE Curriculum Summit* and its outcomes, developing graduate skills, disabled students accessing mathematics and techniques for making lectures more interactive.

For full information on the above as well as news from projects, upcoming events and publications, please keep an eye on the website at www.mathstore.ac.uk/hestem and the project blog at mathshe.wordpress.com.

Peter Rowlett

HE Curriculum Innovation Advisor
Maths, Stats and OR Network

NATIONAL SCIENCE AND ENGINEERING WEEK SEMINAR 2012

For the first time the Council for the Mathematical Sciences (CMS) was given the opportunity to participate in a meeting on the mathematical sciences in Parliament. The event took place in the Grand Committee Room, Westminster Hall in collaboration with the Parliamentary and Scientific Committee as part of National Science and Engineering week and was also supported by the Department for Business, Innovation and Skills.

The seminar entitled *Mathematics Matters – A Crucial Contribution to the Country's Economy* took place on 15 March 2012 and

was attended by Andrew Miller MP, Chair, Parliamentary and Scientific Committee and Stephen Timms MP, Shadow Minister for Employment as well as representatives from a wide range of Science, Technology, Engineering and Mathematics (STEM) organisations.

The audience heard presentations on a range of interesting and relevant mathematical issues and this was an excellent opportunity to hear from leaders in the field about the major contribution that mathematics makes to our modern technology, economy and society:

- *The Mathematical Sciences Landscape in the UK*
Sir Adrian Smith, FRS, Director General, Knowledge and Innovation, BIS, www.bis.gov.uk/adriansmith
- *Assessing and Communicating Risks and Uncertainty*
David Spiegelhalter, FRS, Winton Professor of the Public Understanding of Risk, University of Cambridge, www.statslab.cam.ac.uk/Dept/People/spiegelhalter.html
- *Mathematics in Security and Intelligence*
Malcolm MacCallum, Director, Heilbronn Institute, Bristol, www.maths.bris.ac.uk/research/heilbronn_institute/
- *More than Counting Cases: Mathematics and Control of Infectious Diseases*
Deirdre Hollingsworth, School of Public Health, Imperial College, London, <http://www1.imperial.ac.uk/medicine/people/d.hollingsworth/>
- *Mathematics of Information*
Jared Tanner, Professor of Mathematics of Information, University of Edinburgh, www.maths.ed.ac.uk/~tanner/

The speakers were then joined by Stephen Timms MP and Professor Paul Glendinning (Acting Chair, CMS) for an open discussion with delegates on issues raised during the seminar.

For information on all CMS activities, visit www.cms.ac.uk.

LONDON MATHEMATICAL SOCIETY

**6th European Congress of Mathematics
Kraków, Poland**

LMS MEETING AND RECEPTION Tuesday 3 July 2012

The London Mathematical Society will be holding a meeting and reception during the 6th European Congress of Mathematics (6ECM) which takes place in Kraków from 2 to 7 July 2012.

The Society meeting and reception will be held from 6:30 pm to 8:00 pm on Tuesday 3 July. LMS members will have the opportunity to sign the Membership Book which dates back to 1865.

LMS members who wish to attend the meeting and reception should apply for their free ticket to Elizabeth Fisher (lmsmeetings@lms.ac.uk) no later than **Friday 22 June 2012**.

The Society hopes to entertain as many as possible of its members, but numbers are limited by the capacity of the room.



The LMS President, Graeme Segal, asking a question at the National Science and Engineering Week Seminar

MATHEMATICS POLICY ROUND-UP

April 2012

HIGHER EDUCATION

Socioeconomic Diversity in STEM Higher Education

Lower socioeconomic status may still be a barrier to STEM education. This is the conclusion of a new report published by CaSE. The report uses data from the Higher Education Statistics Agency (HESA) to look at the socioeconomic diversity of UK students taking STEM degrees between 2004 and 2010.

According to the report, 'There has been a promising rise in the social diversity of young students (aged under 21) entering higher education as a whole, as well as in STEM.

A major contributor to this improvement has been the increasing social diversity of both those studying biological sciences and computer sciences. These subjects showed consistently greater than average (across all HE subjects) levels of socioeconomic diversity. However, the diversity of young students studying physical and mathematical sciences was consistently lower than average, and moreover did not appear to be rising. The diversity of young students enrolling in engineering and technology subjects was largely in line with (though sometimes lower) than the average across all subjects'.

The report is available at <http://tinyurl.com/ckl5pqt>.

RESEARCH

EPSRC announcement on shaping capability

Working with its major stakeholders EPSRC has mapped its current portfolio and with the support and input of its Strategic Advisory Teams and agreement of Council, has made decisions on the relative funding trajectory for the remaining 53 of the total 113 research areas. The action categories for these research areas are available, as is a full list of research areas and other action categories.

EPSRC also restated its commitment to Peer Review and it has updated the priority areas available for Fellowships. Information on these announcements is available at www.epsrc.ac.uk.

One area to be deemed a 'reduce' area is Mathematical Physics, and the Council for the Mathematical Sciences has released a statement outlining its concerns. The statement is available at <http://tinyurl.com/cl3ocx2>.

New Chairman at EPSRC

Dr Paul Golby CBE, former Chairman and Chief Executive of E.ON UK plc, has been selected as the Government's preferred candidate to be the Chair of the Engineering and Physical Sciences Research Council (EPSRC). The current Chairman Sir John Armitt CBE stepped down at the end of March. More information available at <http://tinyurl.com/borhu6n>.

EPSRC announces over £950 million to support science challenges of our times

Significant funding for research, that addresses both the societal and economic challenges facing the UK and the world, and enables and sustains a resilient science base, will be made available by EPSRC in the coming 2012/13 financial year. The total committed budget will be around £950 million and the opportunities will be across the EPSRC portfolio, through both managed calls and application for discovery-led research.

The opportunities for the mathematical sciences are outlined in the statement. 'The Mathematical Sciences, Healthcare Technologies and Manufacturing the Future themes will be working in partnership on a number of collaborative projects and are encouraging individuals to discuss their ideas with EPSRC. This will include a sandpit to develop new algorithms and approaches for mathematicians in the area of healthcare modelling. Mathematical Sciences will be looking to increase the proportion of larger, programme-type grants.' More information is available at <http://tinyurl.com/cyr5tq6>.

EPSRC invests £83 million in PhD training

The Engineering and Physical Sciences Research Council (EPSRC) is this year investing £83 million in postgraduate training through its annual Doctoral Training Grants (DTGs). This year's investment is the highest ever made. More information available at <http://tinyurl.com/c7xup5r>.

Funding for university research facilities

Funding of £100 million for university research facilities was announced in the recent budget. This investment is intended to maintain and improve the world-class research carried out by universities by investing in essential infrastructure and attracting investment from outside the public sector.

The fund will be administered by HEFCE, which will work with the other UK funding bodies, higher education institutions and other partners, such as business, charities and donors, to attract substantial investment in research facilities to help maintain the international position of our universities and the wider research base. The fund will allocate its first bids in 2012–13.

SCHOOLS AND COLLEGES

Ofsted asked to discourage GCSE early entry

Education Secretary Michael Gove has warned of the dangers of entering students early for GCSEs before they are ready. Mr Gove has written to the chief inspector at Ofsted, Sir Michael Wilshaw, to ask him to examine how the practice can be 'discouraged'.

Department for Education research shows that:

- In 2007 there were 67,000 early entries in English and mathematics GCSEs – only two per cent of students entered English early while only five per cent of students entered mathematics early.
- In 2010 the number of early entries rose to 326,000 – 24 per cent of students took English early while 27 per cent of pupils took mathematics early.

- In 2010, 29 per cent of early entrants got an A*, A or B in mathematics GCSE – compared with 37 per cent of all entrants, and 41 per cent of end-of-course entrants.
- In 2010, 30 per cent of early entrants got an A*, A or B in English GCSE – compared with 41 per cent of all entrants, and 45 per cent of end-of-course entrants.
- Higher attaining state schools are less likely to enter students early than lower attaining schools. For example there were fewer students entering early in grammar schools than there were in other state schools.

Education Select Committee takes evidence on teacher training

The Education Select Committee took oral evidence from the Minister of State for Schools, Nick Gibb on 14 March to examine how to attract, train and retain the best teachers. Gibb answered a question on mathematics specialist teachers. The transcript of the session will be available at <http://tinyurl.com/bpvfp3c>.

National Curriculum Review

The Advisory Committee on Mathematics Education (ACME) has responded to the National Curriculum Review Expert Panel report (<http://tinyurl.com/cxvbfel>). The response is available at <http://tinyurl.com/dyb8lrp>.

European perspective

The Education, Audiovisual and Culture Executive Agency has published a report entitled *Mathematics Education in Europe: Common Challenges and National Policies*. The report is available at <http://tinyurl.com/bnccnatu>.

Westminster debate

A debate on *Mathematics Education 16–18* was tabled by Elizabeth Truss MP on 27 March. The transcript is available at <http://tinyurl.com/cm57wsu>.

Dr John Johnston
Mathematics Promotion Unit



LONDON
MATHEMATICAL
SOCIETY



THE LONDON MATHEMATICAL SOCIETY
JOINTLY WITH GRESHAM COLLEGE

Tuesday 15th May 2012

6:00pm at Barnard's Inn Hall

Home Office Mathematics

Professor Bernard Silverman, FRS

Chief Scientific Adviser, Home Office

The Chief Scientific Adviser is the head of Home Office Science, which provides scientific advice and support to the whole range of the Home Office's work as the lead government department for immigration and passports, drugs policy, crime, counter-terrorism and police. Many aspects of our scientific work involve mathematics, and in this talk a selection will be presented. These show not only how mathematics is used by one particular government department, but also how wide the range of topics is where mathematical thinking and methods are important.

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020 7831 0575 enquiries@gresham.ac.uk www.gresham.ac.uk

LONDON MATHEMATICAL SOCIETY

POPULAR LECTURES 2012

Celebrating 30 years

Institute of Education, London – Tuesday 26 June

King Edward School, Birmingham – Wednesday 26 September



David Hilbert

Professor Tim Gowers FRS

University of Cambridge

Can anything be salvaged from the wreckage of Hilbert's dream?

Could we program a computer to do maths at least as well as we do it? This is a formidable challenge, for reasons that Tim Gowers will discuss, but despite the difficulties he will try to persuade you that the answer is yes

Professor Sir Roger Penrose FRS

University of Oxford

On Attempting to Model the Mathematical Mind

In this talk, Roger Penrose introduces the idea of a 'cautious oracle' as a more human version of Turing's oracles (a way of modelling the mathematical mind). He reports on some startling new experiments, which appear to point to new insights into brain activity, and he speculates on how this might relate to the power of human understanding.

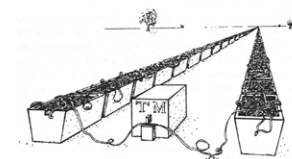


Fig. 2.1. A strict Turing machine requires an infinite tape!

Full abstracts are available on the LMS website at www.lms.ac.uk/content/popular-lectures

LONDON: Commences at 7.00 pm, refreshments at 8.00 pm, ends at 9.30 pm.

Admission is free, with ticket. **Register by Thursday 21 June.**

BIRMINGHAM: Commences at 6.30 pm, refreshments at 7.30 pm, ends at 9.00 pm.

Admission is free, with ticket. **Register by Friday 21 September.**

To register for tickets, please email Lee-Anne Parker (popular.lectures@lms.ac.uk) or visit the LMS website for a registration form (www.lms.ac.uk/content/popular-lectures).

VOICE OF THE FUTURE

The Council for Mathematical Sciences (CMS) sent young mathematical scientists to the recent *Voice of the Future 2012* event. This was an opportunity for scientists aged 16–35 to put their questions to an assembled panel of MPs at the House of Commons. The event, organised by the Society of Biology, took place at Portcullis House on Wednesday 14 March 2012.

MPs attending the event included the Minister for Universities and Science, David Willetts MP; Shadow Minister for Innovation and Science, Chi Onwurah MP; and members of the House of Commons Select Committee on Science & Technology. Places were allocated via a competitive selection process. The event formed part of the National Science and Engineering Week programme. Information is available on the CMS website at www.cms.ac.uk/votf2012.

COMBINATORICS COLLOQUIA

Two linked one-day colloquia in combinatorics will be taking place in London. The first day will be held at Queen Mary, University of London, on Wednesday 16 May and the second will take place at the London School of Economics and Political Science on Thursday 17 May 2012. It is hoped that the talks will be of wide interest to all those working in combinatorics or related fields. The schedule is as follows:

Queen Mary, University of London (16 May)

- Julia Böttcher (LSE) *Powers of Hamilton cycles in pseudo-random graphs*
- Gregory Gutin (Royal Holloway) *Applications of discrete harmonic analysis, probabilistic method and linear algebra in fixed-parameter algorithmics and graph theory*

- Daniel Král (Charles University, Prague) *Flag algebra method in extremal combinatorics*
- Richard Mycroft (University of Birmingham) *A multipartite Hajnal–Szemerédi theorem*
- Lutz Warnke (University of Oxford) *The evolution of Achlioptas processes*
- Günter Ziegler (Freie Universität, Berlin) *Cutting polygons, configuration spaces, and binomial coefficients*

London School of Economics (17 May)

- Rosemary Bailey (Queen Mary, University of London) *Levi graphs and concurrence graphs as tools to evaluate designs*
- Magnus Bordewich (University of Durham) *Fast and slow mixing in the ferromagnetic Potts model*
- Artur Czumaj (University of Warwick) *Finding cycles and trees in sublinear time*
- Nikolaos Fountoulakis (University of Birmingham) *Random geometric graphs on non-euclidean spaces*
- János Pach (EPF Lausanne) *Szemerédi strikes back*
- Mathias Schacht (University of Hamburg) *Regularity method in sparse graphs*

Anyone interested is welcome to attend. Some funds are available to contribute to the expense of research students who wish to attend the meetings. Further details can be obtained from the web page www2.lse.ac.uk/maths/Seminars/Colloquia_2012.aspx or from Jozef Skokan (j.skokan@lse.ac.uk) and Peter Keevash (p.keevash@qmul.ac.uk).

There are also some funds available from the London Mathematical Society for help with childcare costs. Further details can be found on the website www.lms.ac.uk/content/childcare-supplementary-grants. Support for this event by an LMS Conference grant and by the British Combinatorial Committee is gratefully acknowledged by the organisers.

COMBINATORICS AT OXFORD

A one-day *Combinatorics* meeting will be held in Oxford on Wednesday 30 May 2012. The meeting will take place in the Mathematical Institute, with talks starting at 11 am and coffee available beforehand from 10.30 am. This year's speakers are:

- Louigi Addario-Berry (Montréal)
- Béla Bollobás (Cambridge/Memphis)
- Jacob Fox (MIT)
- Jarik Nešetřil (Prague)
- Benny Sudakov (UCLA)

Anyone interested is welcome to attend. Some funds may be available to contribute to the expenses of research students who wish to attend the meeting. Further details can be obtained from Alex Scott (scott@maths.ox.ac.uk) or from the website at http://people.maths.ox.ac.uk/scott/Pages/one-day_meeting.htm. The meeting is supported by an LMS Conference grant and the British Combinatorial Committee.

CLAY RESEARCH CONFERENCE

The 2012 Clay Research Conference will be held from 18 to 19 June 2012 at the University of Oxford, Martin Wood Lecture Theatre, Department of Physics. Jeremy Kahn (Brown University) and Vladimir Markovic (Caltech), winners of this year's Clay Research Awards, will speak on their resolution of the Ehrenpreis conjecture. Other confirmed speakers are:

- Artur Ávila (IMPA/CNRS)
 - Francis Brown (CNRS)
 - Stavros Garoufalidis (Georgia Tech)
 - Marc Lackenby (University of Oxford)
 - Peter Scholze (University of Bonn)
- Registration is free but strongly recommended. More information is available at www.claymath.org.

CAMBRIDGE

Mathematics of Public Key Cryptography

Steven D. Galbraith

Public key cryptography is a major interdisciplinary subject with many real-world applications, such as digital signatures. A strong background in the mathematics underlying public key cryptography is essential for a deep understanding of the subject, and this book provides exactly that for students and researchers in mathematics, computer science and electrical engineering. Carefully written to communicate the major ideas and techniques of public key cryptography to a wide readership, this text is enlivened throughout with historical remarks and insightful perspectives on the development of the subject.

February 2012 | Paperback | 9781107013926 | 630 pages | £45.00

www.cambridge.org/galbraith

Enumerative Combinatorics


Volume 1
2nd Edition
Richard P. Stanley

Richard Stanley's two-volume basic introduction to enumerative combinatorics has become the standard guide to the topic for students and experts alike. This thoroughly revised second edition of Volume 1 includes ten new sections and more than 300 new exercises, most with solutions, reflecting numerous new developments since the publication of the first edition in 1986. The author brings the coverage up to date and includes a wide variety of additional applications and examples, as well as updated and expanded chapter bibliographies.

February 2012 | Paperback | 9781107062625 | 640 pages | £33.00
February 2012 | Hardback | 9781107015425 | 640 pages | £75.00

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Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Professor of Applied Mathematics

The Department of Mathematics (www.math.ethz.ch) at ETH Zurich invites applications for a position in Applied Mathematics at the Full or Associate Professor level. The vacant position is within the Seminar for Applied Mathematics, SAM (www.sam.math.ethz.ch).

The successful candidate's mathematical results should have received wide international recognition. His or her results should be landmark contributions to mathematical modelling and/or efficient numerical simulation in engineering and the sciences. A strong algorithmic and computational component in his/her mathematical research is expected. The candidate should have demonstrated proficiency in conducting pioneering projects in applied mathematics. Together with other members of the Department, the new professor will be responsible for teaching undergraduate courses (German or English) and graduate courses (English) for students in Applied Mathematics and Computational Science and Engineering (CSE).

Please apply online at www.facultyaffairs.ethz.ch. Your application should include your curriculum vitae and a list of publications. The letter of application should be addressed to the President of ETH Zurich, Prof. Dr. Ralph Eichler. The closing date for applications is 31 July 2012. ETH Zurich is an equal opportunity and affirmative action employer. In order to increase the number of women in leading academic positions, we specifically encourage women to apply. ETH Zurich is further responsive to the needs of dual career couples and qualifies as a family friendly employer.

APPLIED AND NUMERICAL MATHEMATICS

The Essex–Greenwich–Hertfordshire Workshop on *Applied and Numerical Mathematics* will take place from Thursday 7 to Friday 8 June 2012 at the University of Greenwich. It is a one-and-a-half day workshop for junior researchers and PhD students who work in the area of multi-scale modelling and methods. The format of the workshop will be plenary talks and contributed talks on the first day, and brief presentations of research work by junior PhD students and a panel discussion on the future direction of multi-scale methods on the second day. Agreed plenary speakers include:

- Ariel Iserles (University of Cambridge)
- Frédéric Nataf (Université Pierre et Marie Curie)
- Jiayun Pang (University of Greenwich)

The scope of the workshop covers various interests in problems related to disparate temporal and spatial scales and will cover a variety of problems from different industries. For further information visit the website at <http://ghsymposium.gre.ac.uk/EGH2012> or contact Choi-Hong Lai (C.H.Lai@greenwich.ac.uk). The workshop is supported by an LMS Postgraduate Research Conference Scheme 8 grant.

CONFERENCE IN HONOUR OF NANCY NICHOLS' 70TH BIRTHDAY

A conference on *Numerical Linear Algebra, Control Theory and Data Assimilation* in honour of Nancy Nichols' 70th birthday will take place from 2 to 3 July 2012 at the University of Reading. The conference will celebrate Nancy's contributions to control theory, numerical linear algebra and data assimilation. The confirmed speakers include:

- Craig Bishop (Naval Research Laboratory, Monterey, USA)

- Angelika Bunse-Gerstner (Universität Bremen, Germany)
- Sarah Dance (University of Reading, UK)
- Jerry Kautsky (Flinders University, Adelaide, Australia)
- Volker Mehrmann (Technische Universität Berlin, Germany)
- Alan O'Neill (University of Reading, UK)
- Michael Overton (New York University, USA)
- Gilbert Strang (Massachusetts Institute of Technology, USA)
- Paul Van Dooren (Université Catholique de Louvain, Belgium)
- Andy Wathen (University of Oxford, UK)

Registration is now open and contributed talks are invited. Limited funds are available to support PhD students to attend. For full details visit the conference website www.reading.ac.uk/maths-and-stats/news/nancy70.html or email nancy70@reading.ac.uk. This conference is supported by an LMS Conference grant.

MULTISCALE MODELLING AND TECHNIQUES

A postgraduate conference on *Multiscale Modelling and Techniques* will take place on Wednesday 6 June 2012 at ICMS, Edinburgh. There will be tutorial lectures on multiscale modelling and techniques (made specifically accessible to postgraduate students). Speakers include Hans Othmer (Minneapolis) and Rachel Kuske (UBC, Vancouver). There will also be an opportunity for postgraduate students to present their work – as a talk or a poster – to fellow researchers.

Visit the website at www.icms.org.uk/workshops/multiscalepostgrad for further information. The conference is supported by an LMS Postgraduate Research Conference Scheme 8 grant.

This one-day conference is part of a workshop on *Scale Transitions in Chemistry and Biology* taking place from 4 to 8 June 2012 (www.icms.org.uk/workshops/scale).

NONLINEAR PDE; FREE SURFACE AND INTERFACE PROBLEMS

An international conference on *Nonlinear PDE* and a workshop on *Free Surface and Interface Problems* will take place from 10 to 15 September 2012 in Oxford.

The main objective of the conference is to bring scientists with interests in the analysis of nonlinear partial differential equations (PDE) and their applications together to present recent developments and explore new connections between nonlinear PDE and other areas in mathematics and related fields in the sciences. PDE are ubiquitous in the sciences, where they provide a natural mathematical description of many phenomena. The behaviour of every material object, with length scales ranging from sub-atomic to astronomical and timescales ranging from picoseconds to millennia can be modelled by PDE or by equations having similar features. Contemporary challenges raised by recent advances in the sciences are confronted with state-of-the-art mathematical ideas and tools in PDE. There will be 12 lectures and eight mini-symposium sessions over four days (Monday to Thursday), covering a wide spectrum of topics related to nonlinear PDE.

The speakers are: Luigi Ambrosio, Constantine Dafermos, Isabelle Gallagher, Martin Hairer, Fanghua Lin, Pierre-Louis Lions, Felix Otto, Frank Pacard, Richard Schoen, Gigliola Staffilani, Andrew Majda, Eitan Tadmor.

The workshop will be held at St Anne's College, Oxford and consist of three sessions, each of three hours' duration (Friday and Saturday). The general theme will be the theoretical and numerical aspects of nonlinear hyperbolic and dispersive free boundary and interface problems. These various types of PDE problems arise from a variety of important real world problems in fluid and gas dynamics, and offer challenges both from the analytical and

numerical viewpoints. Each session will involve a mix of analysts and numerical analysts and show connections between the analysis and the numerical sides of the problems discussed.

More information is available at www.maths.ox.ac.uk/groups/oxpde/events. The conference and workshop are part of the joint scientific activities of Oxford Centre for Nonlinear PDE (OxPDE, Oxford) and Centre for Analysis and Nonlinear PDE (CANPDE, Edinburgh) and are funded by EPSRC and an LMS Conference grant.

GALWAY TOPOLOGY COLLOQUIUM

The 15th *Galway Topology Colloquium* will be held from 9 to 11 July 2012 at the Mathematical Institute, University of Oxford. The invited speakers are:

- A.V. Arhangel'skii (University of Moscow and Ohio University)
- A. Dow (UNC Charlotte)
- A. McCluskey (NUI Galway)
- J. van Mill (Vrije Universiteit, Amsterdam)
- F. Tall (University of Toronto)
- V.V. Tkachuk (Autonomous Metropolitan University, Mexico City, Mexico)

The Galway Topology Colloquium was created in 1997 in Galway with the intention of encouraging graduate students studying Analytic and Set-theoretic Topology to present their findings to a professional, supportive, and inquisitive audience. It is also the established annual arena to bring together British and Irish analytic and set-theoretic topologists to collaborate on their research. Its particular focus is on the active participation of all who attend to promote a spirit of training, learning and communicating. The atmosphere is informal and graduate students are especially encouraged to participate.

For further information visit the website at www.maths.ox.ac.uk/events/conferences/galway15. The colloquium is supported by an LMS Conference grant.



Isaac Newton Institute for Mathematical Sciences

TOPOLOGICAL FLUID DYNAMICS

(IUTAM Symposium)

23–27 July 2012

in association with the Newton Institute programme
Topological Dynamics in the Physical and Biological Sciences
(16 July – 21 December 2012)

International Scientific Committee: Yoshifumi Kimura (Nagoya) (Chair), Konrad Bajer (Warsaw) (Co-Chair), Mark Stremler (Virginia Tech.), Peter Constantin (Chicago), David Dritschel (St Andrews), Keith Moffatt (Cambridge) (Co-Chair), Timothy Pedley (IUTAM Bureau Representative).

In an ideal fluid, vortex lines are transported with the fluid and their topology is conserved for so long as the field remains smooth; in particular, the helicity of the flow, providing a measure of the degree of linkage of vortex lines, is conserved. A central unsolved problem concerns the question of whether the vorticity field does remain smooth for all time under Euler evolution, or whether (alternatively) singularities at finite time may develop. Three-dimensional vortex interactions lie at the heart of this problem. Weak (viscous) diffusion modifies the evolution, but does not necessarily suppress singularity formation. Viscosity allows vortex reconnection and therefore change of topology; this process provides for the finite rate of dissipation of energy in turbulence even in the limit of vanishing viscosity.

Deadline for applications is **31 May 2012**. For more information and application forms visit the website at www.newton.ac.uk/programmes/TOD/todw01.html.

YORKSHIRE AND DURHAM GEOMETRY DAY

The next *Yorkshire and Durham Geometry Day* will take place in Leeds on 1 June 2012. The programme is:

- Ian McIntosh (University of York)
Minimal surfaces and the representations of surface groups
- Simon Salamon (King's College, London)
Evolution of SU(3) structures and G₂ metrics
- Ian Strachan (University of Glasgow)
Symmetries of F-manifolds

- Evgeny Ferapontov
(University of Loughborough)
Linearly degenerate PDEs in 3D and quadratic line complexes

For further information contact the local organisers Roger Bielawski (rb@maths.leeds.ac.uk) and Martin Speight (speight@maths.leeds.ac.uk) or visit the website at www1.maths.leeds.ac.uk/pure/geometry/yardg/prog11_2.html.

BEAUVILLE SURFACES AND GROUPS

A conference on *Beauville Surfaces and Groups* will take place in the School of Mathematics and Statistics, Newcastle University from 7 to 9 June 2012. Beauville surfaces are a class of rigid regular surfaces of general type, which can be described in a purely algebraically combinatorial way. They appear in different fields of mathematics such as algebraic geometry, group theory and number theory.

The intention of this conference is to bring together experts from various fields, who are also interested in Beauville surfaces, in order to share knowledge and discuss further developments of this new and exciting subject.

Invited speakers are:

- Nigel Boston (University of Wisconsin)
- Fabrizio Catanese (University of Bayreuth)
- Ben Fairbairn (Birkbeck, University of London)
- Shelly Garion (University of Münster)
- Gareth Jones (University of Southampton)
- Michael Lönne (University of Hannover)
- Kay Magaard (University of Birmingham)
- Gunter Malle (University of Kaiserslautern)
- Chris Parker (University of Birmingham)
- Matteo Penegini (University of Bayreuth)
- Norbert Peyerimhoff (Durham University)
- Roberto Pignatelli (University of Trento)
- Francesco Polizzi (University of Calabria)

If you wish to attend the conference, fill in the registration form by **1 June 2012** at www.students.ncl.ac.uk/nathan.barker/beauville. The meeting is supported by an LMS Conference grant.

LIE THEORY

A workshop on *Recent Developments in Lie Theory* will take place at the School of Mathematics, University of Manchester from Friday afternoon 1 June to Saturday afternoon 2 June 2012. The focus of the

meeting will be on new developments in representation theory of Lie algebraic structures and possible links to geometry, combinatorics and mathematical physics. The speakers include:

- Simon Goodwin (Birmingham)
- Anne Henke (Oxford)
- Christian Korff (Glasgow)*
- Konstanze Rietsch (KCL)
- Dmitriy Rumynin (Warwick)

*to be confirmed

The workshop is organised by Yuri Bazlov and Gwyn Bellamy. To obtain further information, and to express an interest in attending, visit the workshop web page at <http://tinyurl.com/lie-workshop>. The workshop is supported by an LMS Conference grant.

SINGULARITY THEORY

An international workshop on *Singularity theory, its modern applications and future prospects* will be held in honour of the 60th birthday of J.W. (Bill) Bruce and the 75th birthday of C.T.C. (Terry) Wall, FRS, at the University of Liverpool from 18 to 22 June 2012. The influence of Bruce and Wall, through their works, their students and their collaborators, is truly international and of the greatest significance for singularity theory and its applications. The idea of the meeting is to bring together international leaders, promising young researchers and doctoral students in various branches of Singularity Theory and in adjacent areas where Singularity Theory has applications. The major aims of the workshop are to disseminate new results and ideas, to foster new developments within Singularity Theory and to look for new areas of application and interaction.

The organizers are Peter Giblin (pgiblin@liv.ac.uk) and Victor Goryunov (goryunov@liv.ac.uk), and further details can be found on the website <http://liv.ac.uk/~pgiblin/B-W2012/index.htm>. The meeting is supported by an LMS Conference grant and EPSRC.

ANALYSIS OF QUANTUM SYSTEMS AND CONTROL

A meeting on *Analysis of Quantum Systems and Control* will take place from 24 to 25 May 2012 at Aberystwyth University. The speakers are:

- Daniel Burgarth (Aberystwyth)
- Rolf Gohm (Aberystwyth)
- John Gough (Aberystwyth)
- Madalin Guta (Nottingham)
- Merlijn van Horssen (Nottingham)
- Keith Hughes (Bangor)
- Claus Köstler (Aberystwyth)
- Frank Langbein (Cardiff)
- Sophie Schirmer (Swansea)
- Alessio Serafini (London)

The organizers are Daniel Burgarth and John Gough. For further information visit the website <https://sites.google.com/site/aberquant/wales-quantum-control-meeting>. The meeting is supported by the Wales Institute for Mathematical and Computational Sciences Mathematical Analysis Cluster and by an LMS Conference grant.

FUTURE DIRECTIONS FOR QUANTUM GROUPS

A conference on *Future Directions for Quantum Groups* will take place at Lancaster University from 6 to 8 September 2012. The aims of the meeting are

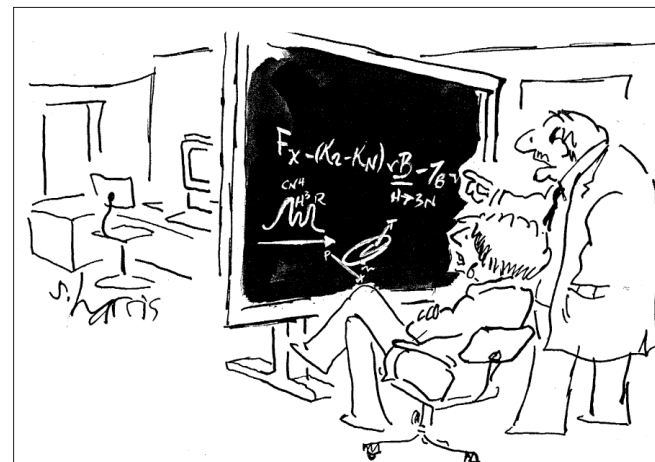
- to reflect on recent progress in the study of quantum groups and related areas such as noncommutative geometry, and
- to identify the most important open problems in the area and new avenues for exploration of them.

The speakers will include:

- Y. Bazlov (Manchester)
- T. Brzezinski (Swansea)
- D. Hernandez (Paris VII)
- U. Krämer (Glasgow)
- K. Kremnizer (Oxford)
- S. Kolb (Newcastle)
- S. Launois (Kent)
- T. Lenagan (Edinburgh)

Financial support is available for post-

graduate students and early-career researchers. For further information please see the conference website at www.maths.lancs.ac.uk/~grabowsj/futuredirections/ or contact the organiser, Jan Grabowski (j.grabowski@lancaster.ac.uk). The meeting will incorporate a meeting of the ARTIN (Algebras and Representation Theory in the North) network and is supported by conference grants from the London Mathematical Society and the Faculty of Science and Technology at Lancaster.



"Change that seven to a three, and presto! Science fiction!"

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ENHANCING MATHEMATICS RESEARCH IN AFRICAN UNIVERSITIES

The 2012 Strathmore International Mathematics Research Meeting on *Enhancing Mathematics Research in African Universities through International Collaboration* will take place from 23 to 27 July 2012 at Strathmore University, Nairobi. The objective of this meeting is to bring together expert researchers from around the world to exchange ideas and share their research results in contemporary areas of mathematics research and application. This meeting also intends to promote and explore new collaborations among the international mathematics community and, in particular, researchers in Africa.

The meeting will focus on five areas of mathematics research and application, namely *pure mathematics*, *mathematical biology*, *mathematical finance*, *statistical modelling* and *mathematics education*. The meeting will be organized into five 4-day parallel workshops of invited and contributed talks in each of the areas of focus listed above. Each workshop will include a graduate students and postdoctoral fellows' poster session. Each workshop will have a convener, or two joint conveners who will be a renowned researcher(s) in the respective area of focus. The convener(s) will have the responsibility of organizing the workshop, inviting the key speakers, and selecting contributed talks and graduate students posters. On the last day there will be a one-day symposium which will include plenary talks by leading researchers in each of the listed areas, and an expert panel to discuss current problems and future directions in mathematics research and applications in Africa.

Further information about the meeting can be found on the website at www.strathmore.edu/math.

MATHEMATICAL GEOPHYSICS

The 29th International Union of Geodesy and Geophysics Conference on *Mathematical Geophysics*, focusing on *Confronting Models with Data*, will be held at the National Museum of Scotland in Edinburgh from 18 to 22 June 2012.

The conference aims to draw together key contemporary issues in mathematical geophysics, including solid Earth, ocean, atmosphere, cryosphere, climate observations and data assimilation, modelling of the Earth system and its components, model validation and the solving of contemporary earth science problems. An opening session on *Mathematics of the Planet Earth* will anticipate the year 2013 emphasis on the subject. Chris Jones (University of North Carolina) is the invited speaker for the *Mathematics of Planet Earth* session.

The organizers hope that as well as presenting new results, the meeting will also demonstrate methodological approaches that can be transferred between disciplines. For further information visit the conference website www.cmgedinburgh2012.org.uk or email mark.naylor@ed.ac.uk.

WALES MATHEMATICS COLLOQUIUM 2012

The Wales Mathematics Colloquium is a forum for the promotion and discussion of current research in mathematics in Wales. The meeting is being held at Gregynog Hall, Tregynon, near Newtown, Powys from 21 to 23 May 2012. It will begin with tea at 4 pm on the 21st and run until after lunch on the 23rd. The invited speakers are:

- Robert Archbold (Aberdeen) *Measuring non-commutativity in operator algebras and Strength of convergence in orbit spaces for improper actions of groups*

- Stephen Wilson (Strathclyde) *Coating and rimming flows on horizontal cylinders and Rivulet flow*

In addition, Dr Hilary Weller (Reading) will give the inaugural C3W lecture on climate modelling: *The dynamical core of a climate model for next-generation computer architectures*.

The meeting is organised jointly by the mathematics departments of universities in Wales, and most of the participants will be from those departments. Any others who would like to attend will be very welcome. The registration fee is £200, to include all meals and accommodation. Please note that we are unable to give financial support to outside participants.

To register please complete the form at www.wimcs.ac.uk/gregynog.html. There are opportunities for contributed talks. For further details contact Professor Simon Cox (sxc@aber.ac.uk). The organisers would like to thank the LMS, the Climate Change Consortium of Wales (C3W) and the Gregynog Fund for financial support.

NEVANLINNA THEORY AND NUMBER THEORY

The fourth *Frontiers of Nevanlinna Theory* workshop will take place at University College London from 18 to 20 June 2012. The meeting will explore the formal similarity between parts of complex analysis (specifically the value distribution of meromorphic functions) and parts of number theory (in particular, Diophantine approximation). The meeting should be of interest to complex analysts and number theorists alike. Speakers will include:

- Enrico Bombieri (Princeton University) tbc
- Alexandre Eremenko (Purdue University)
- Walter Gubler (Universität Tübingen)
- Walter Hayman (Imperial College London)
- Aaron Levin (Michigan State University)

- David McKinnon (University of Waterloo)
- Patrick Tuen Wai Ng (University of Hong Kong)
- Joseph Silverman (Brown University)
- Yum-Tong Siu (Harvard University)
- Paul Vojta (University of California at Berkeley)
- Zhuan Ye (Northern Illinois University)

The meeting is open to all. Some funds are available to help UK postgraduate students attend the meeting. Contact Rod Halburd to register your interest. For further details go to www.homepages.ucl.ac.uk/~ucahrha/conferences/frontiers/frontiers4.html. The meeting is supported by EPSRC and an LMS Conference grant.

BRANES, SUPERGRAVITY AND M-THEORY

Professor Paul Townsend is an internationally renowned figure in the field of theoretical and mathematical physics and recently turned 60. His career, spanning nearly 40 years, has included seminal contributions to many different areas in the field. He is one of the world's leading experts in the area of supersymmetry, supergravity, dualities and the properties of extended objects or 'branes'. He has made some pivotal discoveries which revealed that the various string theories, which beforehand had been thought to be just defined in ten spacetime dimensions, are all different aspects of a single eleven-dimensional theory, now called M-theory.

Following tradition there will be a conference in Professor Townsend's honour from 2 to 3 July 2012 at DAMTP in Cambridge. For further information and registration visit the conference website at www.damtp.cam.ac.uk/research/hep/conferences/branes. The conference is funded in part by the Science and Technology Facilities Council and an LMS Conference grant.

PROBABILITY AT WARWICK YOUNG RESEARCHERS WORKSHOP



The Warwick Department of Statistics is pleased to announce the fifth *Probability at Warwick Young Researchers Workshop*, which will run from 23 to 27 July 2012. The workshop has the principal aim of bringing together young researchers working in probability, and will feature lectured courses by two excellent speakers intended to be accessible to graduate mathematicians and probabilists:

- Geoffrey Grimmett (University of Cambridge) *Graphical probability and disordered systems*
- John Biggins (University of Sheffield) *Topics in branching processes*

Registration is now open, with the deadline for the allocation of subsidised places being **31 May 2012**. For further information visit the workshop webpage at www2.warwick.ac.uk/fac/sci/statistics/research/paw/paw2012. The organisers would like to thank the University of Warwick Institute of Advanced Study, the London Mathematical Society and the University of Warwick Department of Statistics for their generous support. In particular, the workshop is being partially supported by an LMS Conference grant.

STOCHASTIC MODELLING IN ECOSYSTEMS

A two-day workshop on *Stochastic Modelling in Ecosystems* will take place in the Department of Mathematics and Statistics, University of Strathclyde in Glasgow from 11 to 12 June 2012. Due to the complex features of ecosystems, stochastic modelling has become more and more popular, not only because it is useful in the study of ecosystems, but also presents many challenges to mathematical research as well as provides ecologists, biologists

and mathematicians with a great opportunity to collaborate together. This workshop is to bring researchers and their research assistants and students together to promote, encourage, and influence more cooperation. The list of speakers includes:

- David Alonso (Spain)
- Pierre Couteron (France)
- Carlo De Michele (Italy)
- Alison Gray (Strathclyde)
- Martin Griffiths (Essex)
- Pat Heslop-Harrison (Leicester)
- Jongrae Kim (Glasgow)
- Bob Scholes (South Africa)
- Renata Vezzoli (Italy)
- Mathew Williams (Edinburgh)
- Lihu Xu (London)
- Chenggui Yuan (Swansea)
- Hong Yue (Strathclyde)

To register your interest in this conference email x.mao@strath.ac.uk. For further information visit the website at www.mathstat.strath.ac.uk/seminars/stochastic. The organisers are X. Mao and C. De Michele. The meeting is supported by an LMS Conference grant.

SPECTRAL THEORY OF HANKEL OPERATORS

A one-day workshop on *Spectral Theory of Hankel Operators* and related topics will be held on 8 June 2012 at King's College London (Room K2.31). The speakers are:

- Alexander Its (Indianapolis)
- Igor Krasovsky (Imperial College)
- Jonathan Partington (Leeds)
- Oana Pocovnicu (Imperial College)
- Dmitri Yafaev (Rennes 1)

Dmitri Yafaev will be visiting King's College London from 12 May to 9 June; during his visit he will give a mini-course on *Hankel Operators and the Moment Problem*. For further information visit the website at www.kcl.ac.uk/nms/depts/mathematics/spectraltheory.aspx or contact Alexander Pushnitski (alexander.pushnitski@kcl.ac.uk).

RECORDS OF PROCEEDINGS AT LMS MEETINGS

ORDINARY MEETING

held on *Friday 24 February 2012* at the British Medical Association House in London. About 20 members and visitors were present for all or part of the meeting.

The meeting began at 3.30 pm, with the Vice-President, Professor J.P.C. GREENLEES, in the Chair.

Seven people were elected to Ordinary Membership: S.N. Cohen, N. Gill, A.C. Hill, P. Keevash, P.B. Levy, B.E. Owens and P.J. Wolfe; two people were elected to Associate Membership: C. Lecoutre and U. Lupo; and two people were elected under a Reciprocity Agreement: K.M. Amin and B. Rodríguez-González.

The Records of Proceedings of the Society Meetings held on 8 October and 18 November 2011 were signed as a correct record.

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

Professor G.M. STALLARD, Chair of the Women in Mathematics Committee, gave an introduction to the lectures with a brief description of Mary Cartwright and her achievements.

Professor Stallard then introduced the first lecture given by Professor Tom Lenagan on *Totally nonnegative matrices*.

After tea, Professor Stallard introduced Professor Agata Smoktunowicz, who gave the Mary Cartwright Lecture, on *Old and new questions in noncommutative algebra*.

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

After the meeting, a reception was held at the BMA House, followed by a dinner at the Number Twelve Restaurant.

MARY CARTWRIGHT MEETING

Report

The 13th Mary Cartwright Meeting, organized by the Women in Mathematics Committee, was held on Friday 24 February 2012 at the BMA House in London. The meeting, chaired by the LMS Vice-President John Greenlees, started with Society business, including the election of your reporter to associate membership.

The Mary Cartwright Lecturer was Professor Agata Smoktunowicz. Professor Smoktunowicz completed her undergraduate degree at the University of Warsaw and her PhD was awarded in 2000 by the Institute of Mathematics of

the Polish Academy of Sciences. She has been a Lecturer then a Professor at the University of Edinburgh since 2005. She was awarded an LMS Whitehead Prize in 2006 and a European Mathematical Society Prize in 2008.

The first lecture of the afternoon was given by Tom Lenagan from the University of Edinburgh and was entitled *Totally nonnegative matrices*. The lecturer started by showing that pictures of combinatorial objects arising in three different contexts (noncommutative algebra, Poisson geometry and totally nonnegative matrices) are

the same and postulated that there should be a link between these areas. The lecture concentrated on totally nonnegative matrices, giving in particular an efficient test, using intuition coming from noncommutative algebra in a combinatorial context, which allows one to check whether or not a matrix is totally nonnegative. The lecturer finished by explaining the link between the three areas mentioned at the start of the lecture. To conclude, Professor Lenagan presented a 'true theorem which still needs to have a written proof' to the laughter of the assembly.

After the tea break Agata Smoktunowicz gave her lecture about *Old and new questions in noncommutative algebra*. She presented many open questions and theorems arising in associative rings, noetherian rings, algebraic algebras, Golod-Shafarevich algebras, growth of algebras and noncommutative algebraic geometry. Among the questions considered were the Kurosh problem on finitely generated algebraic algebras and the Köthe conjecture on nil rings. She also



Agata Smoktunowicz giving the Mary Cartwright Lecture

presented some joint work with Tom Lenagan on nil rings with polynomial growth. Professor Smoktunowicz illustrated her talk with many photographs of well-known mathematicians including E. Noether, I. Gelfand, J.H.M. Wedderburn, S. Amitsur, D. Anick, E. Artin and A. Kirillov.

The meeting was followed by a reception and a dinner at the Number Twelve restaurant in Bloomsbury.

César Lecoutre
University of Kent

YOUNG FUNCTIONAL ANALYSTS' WORKSHOP

Report

This year's *Young Functional Analysts' Workshop* (YFAW) was held at the University of Oxford from 21 to 22 March 2012. Now in its fourth year and supported for the second time running by a generous LMS Postgraduate Research Conference Scheme 8 grant, the 2012 edition of the workshop was in every way a resounding success.

YFAW is aimed at early-stage researchers in functional analysis and

related areas. This year there were an unprecedented 36 registered participants, some joining us from as far away as St Petersburg.

Each of the two days was divided into a morning and an afternoon session. The first day opened with a 50-minute invited talk by Professor Charles Batty (University of Oxford) on *Hyperbolic operators and semigroups* – a very good start indeed. The subsequent four talks by participants, each 30 minutes long and followed by questions, stayed within the general area of operator theory and complemented the opening talk well. After lunch the workshop resumed with a talk by Dr Olga Maleva (University of Birmingham) on *Differentiability of functions and geometric measure theory*, which served as excellent preparation for the next two similarly-themed talks. The final two speakers of the day returned to the topic of the morning session but in the more concrete setting of spectral inequalities for the Schrödinger operator; a nice reminder of the versatility of our subject.

The second day began with a session dedicated to non-commutative and stochastic analysis, featuring talks on (quantum) stochastic differential equations and (quantum) probability theory. Dr Matthew Daws (University of Leeds), our third invited speaker, did an excellent job at providing the necessary background and motivation in his opening talk on *Analysis in 'non-commutative' mathematics*. The final session started with a talk by Professor Wilhelm Winter (University of Münster) on *Dimension, dynamics and classification of nuclear C^* -algebras* outlining some of the recent progress in this buzzing area of research. Four further talks on operator algebras followed before another intense day drew to a close.

The atmosphere during the workshop was friendly and relaxed throughout yet brimming with the participants' enthusiasm. The

latter was on display not only during the question and answer sessions after each talk but also during the tea and lunch breaks and even during the workshop dinner held at St John's College, Oxford, on the second evening. Photographs can be found on the back cover of this *Newsletter*.

YFAW 2012 was followed by a two-day meeting of the North British Functional Analysis Seminar (NBFAS), also in Oxford, which featured talks by Professors Magdalena Musat (Copenhagen), Gilles Pisier (Paris) and Mikael Rørdam (Copenhagen). It was a pleasure to see such a large proportion of the audience at these talks made up of young researchers and it would seem, in the light of this and the growth of the Young Functional Analysts' Workshop over the past few years, that there is reason to look optimistically into the future of the subject. For functional analysis in Oxford it has certainly been an extraordinary few days.

David Seifert
Balliol College, Oxford

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Agata Smoktunowicz, Mary Cartwright Lecturer, and Tom Lenagan

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www.blms.oxfordjournals.org

Proceedings of the London Mathematical Society
www.plms.oxfordjournals.org

Journal of the London Mathematical Society
www.jlms.oxfordjournals.org

Journal of Topology
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www.lms.ac.uk

REVIEW

The Genius in my Basement: the Biography of a Happy Man by Alexander Masters, Fourth Estate, 2011, 352 pp, £16.99, ISBN 978-0-00-724338-9.

The genius in my basement is, superficially at least, a biography of Simon Norton, probably best known as one of the authors of the *Atlas of Finite Simple Groups*. The biographer, Alexander Masters, was Simon's tenant and friend for many years, and the book is as much a tale of their friendship as a description of its subject. One of its main themes is mathematical genius, why it occurs when it does and why some people produce amazing work at certain periods of their life and then stop. Along the way, it explains the very basics of group theory.

The style is extremely engaging: Masters writes fluently and entertainingly, and the text is interspersed with cartoons, drawn by the author. One unusual aspect is that the subject frequently interjects, even argues with, the text, making corrections and disputing phrasing. At first, this made me feel relaxed about the ways in which the book makes fun of Simon, as it felt as if he was very much in on the joke.

However, and this is a big however, it became increasingly apparent to me that the book has been far less collaborative than it first appears. The reason for this is nothing to do with its rude, but funny, descriptions of Simon, but is the fact that there are several mathematical howlers in the text. For example, the Monster is not "the largest finite group in the universe" (p. 296). I cannot believe that these would have passed unnoticed, if the book had

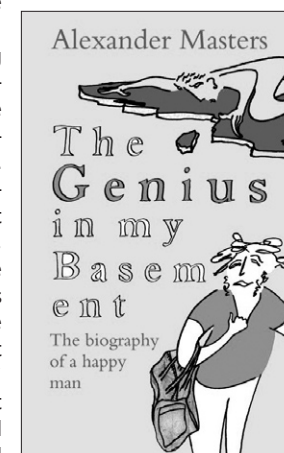
really been read by its subject. This sense that the book might be exaggerating the extent of Simon's editorial control meant that on a second read I was wincing, rather than laughing, at the book's frequent grotesque flights of fancy.

This is not to say, however, that the author is just being snide. An awful lot of self-mockery takes place, and some of the funnier moments are where Simon interjects (entirely accurately) to correct Masters' tendency to overstate and oversimplify. It's written with a great deal of warmth, and this was one of the reasons why at first I found it such an amusing read. However, on further thought it feels as if the author has abused a long-term friendship for a few laughs, to make the book sell better. It could be argued that Masters is making a point about how biographies are inevitably distorting, since one person is necessarily being seen through the biased eyes of another, but this seems to me to be an insufficient justification for the intrusion.

A more minor complaint is that, once again, mathematicians are characterised as not really living in the same world as the rest of humanity. This undoubtedly makes for a more entertaining book, but is a little tiresome: it would be lovely to read a biography which celebrated a mathematician's combination of creativity and precision, without making them seem in some way incapable of functioning in the real world.

This book is funny, entertaining, and often intriguing, but it has made me extremely uncomfortable, and I am not at all sure that I can recommend it.

Colva Roney-Dougal
University of St Andrews



CALENDAR OF EVENTS

This calendar lists Society meetings and other mathematical events. Further information may 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).

Please send updates and corrections to calendar@lms.ac.uk.

MAY 2012

3-5 Mathematics of String and Gauge Theory Workshop, London (412)
8 HE Curriculum Group Meeting on Group Work, Birmingham (414)
14 HE Curriculum Workshop on Placements for Mathematics Undergraduates, Greenwich (414)
15 HE Curriculum Workshop on Being a Professional Mathematician, Greenwich (414)
15 *Home Office Mathematics*, LMS–Gresham Lecture, London (414)
16-17 Combinatorics Colloquia, London
19 **LMS Poincaré Meeting, London (414)**
19 Early Career Mathematicians' IMA Spring Conference 2012, Manchester (413)
21-23 Wales Mathematics Colloquium 2012, Tregynon, Wales (414)
21-25 Dynamics in Infinite Dimensions: Ergodic Theory and PDEs Workshop, ICMS Edinburgh (413)
24-25 Analysis of Quantum Systems and Control Meeting, Aberystwyth (414)
28-1 Jun Branes and Black Holes INI Satellite Meeting, King's College London (412)
28-1 Jun Boundary Value Problems for Linear Elliptic and Integrable PDEs: Theory and Computation ICMS Workshop, Edinburgh (405)
28-1 Jun Infinite Ergodic Theory Workshop, Surrey (413)
30 Combinatorics Meeting, Oxford (414)
31 Thomas Harriot Lecture, Oriel College, Oxford (412)

JUNE 2012

1 Yorkshire and Durham Geometry Day, Leeds (414)
1-2 Recent Developments in Lie Theory Workshop, Manchester (414)
4-8 Scale Transitions in Chemistry and Biology Workshop, ICMS, Edinburgh (414)
5-8 Higher Order Problems in Geometric Analysis Workshop, Bath (409)
6 **LMS Northern Regional Meeting, Northumbria University, Newcastle (414)**
6 Multiscale Modelling and Techniques Postgraduate Conference, ICMS, Edinburgh (414)
6-8 Mathematics of Human Biology Workshop, Northumbria University, Newcastle (414)
6-9 Banach Spaces Workshop 2012, Birmingham (413)
7-8 Essex-Greenwich-Hertfordshire Workshop on Applied and Numerical Mathematics, Greenwich (414)
7-9 Beauville Surfaces and Groups Conference, Newcastle (414)
8 Spectral Theory of Hankel Operators and Related Topics Workshop, King's College London (414)
10-16 SIDE10 International Conference on Symmetries and Integrability of Difference Equations, Ningbo, P.R. China
11-12 Stochastic Modelling in Ecosystems Workshop, Glasgow (414)
11-12 Numerical Analysis of Stochastic PDEs Workshop, Warwick (413)
12-15 The Incomputable Workshop, Chicheley Hall, North Buckinghamshire (407)
12-15 Chaotic Modeling and Simulation International Conference, Athens, Greece
16-17 Combinatorics Colloquia, London (414)
17-22 Continuum Mechanics in Biology and Medicine LMS–EPSRC Short Course, University College London (413)
18-19 Clay Research Conference, Oxford (414)
18-20 Frontiers of Nevanlinna Theory 4: Nevanlinna Theory and Number Theory, University College London (414)
18-22 Topology and Groups Summer School, Berlin, Germany (412)

18-22 Singularity Theory, its Modern Applications and Future Prospects Workshop, Liverpool (414)
18-22 IUGG Conference on Mathematical Geophysics, Edinburgh (414)
18-22 Coarse Geometry of Infinite Groups Conference, Lille, France
18-23 Turing Centenary Conference, Cambridge (407)
21-23 Geometry, Representation Theory and Clusters Workshop, Leicester (413)
21-23 Wales Mathematics Colloquium, Gregynog Hall, Powys (414)
22 Alan Turing Satellite Workshops, Manchester (414)
22-25 Alan Turing Centenary Conference, Manchester (414)
23-24 Turing's Worlds, Oxford (414)
25-29 Topology and Groups Conference, Berlin, Germany (412)
25-29 String Phenomenology INI Workshop, Cambridge (411)
26 **LMS Popular Lectures, London (414)**
29 **LMS Meeting and Hardy Lecture, London (414)**

JULY 2012

2-3 Numerical Linear Algebra, Control Theory and Data Assimilation Conference, Reading (414)
2-3 Branes, Supergravity and M-Theory Conference, Cambridge (414)
2-7 6th European Congress of Mathematics, Kraków, Poland (409)
2-7 Interactions of Birational Geometry with Other Fields LMS Durham Symposium, Durham (413)
3 **LMS Meeting, 6ECM, Kraków (414)**
8-15 ICME12, Seoul, Korea
9-11 15th Galway Topology Colloquium, Oxford (414)
9-13 Additive Combinatorics in Paris 2012 Conference, Paris, France (409)
9-17 Grand Biological Challenges for Mathematicians LMS Durham Symposium, Durham (413)
12-13 CETL-MSOR Conference 2012, Sheffield (414)

12-18 Logic Colloquium 2012, Manchester
23-27 Topological Fluid Dynamics IUTAM Symposium, INI, Cambridge (414)
23-27 Probability at Warwick Young Researchers Workshop, Warwick (414)
23-27 Enhancing Mathematics Research in African Universities through International Collaboration Meeting, Strathmore University, Nairobi, Kenya (414)
26-1 Aug International Mathematics Competition for University Students, Blagoevgrad, Bulgaria (413)
30-3 Aug New Developments in Relativistic Quantum Mechanics and Applications INI Workshop, Cambridge (412)

AUGUST 2012

20-24 Finite Groups, Representations and Related Topics, Oxford
26-28 Modern Mathematical Methods in Science and Technology Conference, Kalamata, Greece (411)
27-30 Algebra, Combinatorics, Dynamics and Applications Workshop, Queen's University, Belfast (410)

SEPTEMBER 2012

1-3 International Pure Mathematical Conference 2012, Islamabad, Pakistan (412)
3 **LMS Midlands Regional Meeting, Aberystwyth (414)**
3 Function Theory Meeting, De Morgan House, London
3-7 Quantum Probabilistic Symmetries Workshop, Aberystwyth (414)
3-7 Topological Aspects of DNA Function and Protein Folding INI Workshop, Cambridge (412)
3-7 Third Iberoamerican Meeting on Geometry, Mechanics and Control, Salamanca, Spain
4-9 British Science Festival, Aberdeen (408)
5-7 Stochastic Methods and Nonlinear PDEs, Cardiff
6-8 British Topology Meeting, Cambridge
6-8 Future Directions for Quantum Groups Conference, Lancaster (414)

LMS-FUNDED MEETING

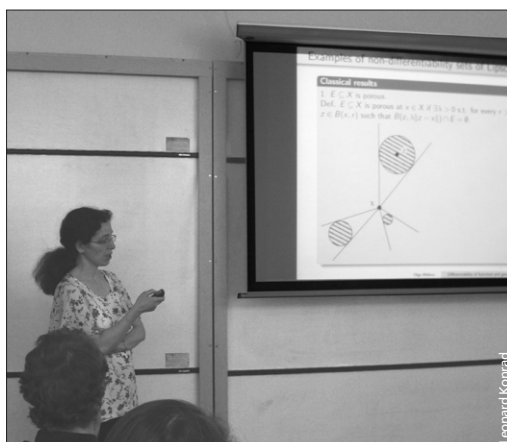
Young Functional Analysts' Workshop (YFAW)
held at the University of Oxford from 21 to 22 March 2012
(report on page 34)



Participants and two of the Invited Speakers (Professor Charles Batty and Dr Matthew Daws)



Speaker Paul Crewe (Oxford)
*Invariant measures for stochastic
differential equations on Banach spaces*



Invited Speaker Olga Maleva (Birmingham)
*Differentiability of functions and
geometric measure theory*