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No. 379 March 2009

Society Meetings and Events

2009

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31 March – 4 April LMS Invited Lectures Edinburgh [*page* 5]

Friday 24 April Women in Mathematics Day London [page 7]

Friday 3 July London

Wednesday 15 July SW & South Wales Regional Meeting Southampton

Wednesday

16 September Midlands Regional Meeting, Leicester

Friday 20 November AGM, London

4–6 December Joint Meeting with the Belgian Mathematical Society

REFERENDUM

Vote by 25 March

The referendum on the merger is a new experience for the De Morgan House staff and the scrutineers, auite different from the annual Council elections. We've done our best to think of everything, and we're pretty sure we've got it right. But we still may have slipped up somewhere, or you may have failed to notice something because it was new to you, just as it has been to us. So if you are in any doubt concerning your vote - you didn't receive the papers, you've lost them, you can't remember whether you've sent your ballot in or not, whatever – please contact The Scrutineers, London Mathematical Society, 57-58 Russell Square, London WC1B 4HS, email: scrutineers@lms.ac.uk (if you're phoning, ring the Executive Secretary, Peter Cooper, on 020 7291 9970) and we should be able to sort it out.

Peter Saunders Scrutineer

LARGE EUROPEAN RESEARCH INFRASTRUCTURES IN MATHEMATICS

After some persuasion, Brussels has agreed to acknowledge infrastructures in Mathematics. Here is the new list of the main sections of European Research Infrastructures:

- Social Science and Humanities
- Environmental Science and Non-nuclear Energy
- Life Sciences
- Physics, Astronomy, Nuclear and Particle Physics, Life Sciences
- Analytical Facilities and Engineering
- Mathematics, Computer-related Sciences, Data

The next EU call for funding European Research Infrastructures will be in September 2009. Each project has been promised a maximum of \in 10M. Brussels does not wish to have a bottom-up approach, as in 2008. In order to ensure that the applications will be of high standard, Brussels has recently organised a meeting of experts who suggested titles for possible research infrastructures within their subjects.

At this meeting the following two infrastructures in Mathematics were identified:

- Mathematics centres of competence, mathematics data and other resources.
- Mathematics service for industry and society.

The first infrastructure is intended for the ERCOM (a committee within the EMS). The second one is directed to Mathematics and Industry. The background for this title is the ESF–EMS–CNRS Forward Look Project Mathematics and Industry.

Information provided by Professor Ari Laptev, President, European Mathematical Society

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NEWSLETTER

ENGAGING WITH EPSRC **RESEARCH THEMES**

The Council for the Mathematical Sciences is holding a one-day event to encourage and assist mathematical sciences researchers to explore opportunities to fund their research through the multidisciplinary research 'themes' identified in EPSRC's strategic plan.

The event will take place on Wednesday 25 March 2009 in central London, with a focus on the role of mathematical sciences in the Energy and Digital Economy themes. EPSRC Theme leaders will be in attendance to engage in discussion, and speakers will provide examples of how they have been able to fund their cutting-edge research in this way. Break-out groups will explore opportunities in more detail.

For further details and to register an interest in attending please contact martin.smith@lms.ac.uk. The full programme is available for view on the CMS website www.cms.ac.uk. The event will be free to attend.

A complete list of EPSRC's multidisciplinary research themes is available from www.epsrc. ac.uk/AboutEPSRC/StrategyAndPlanning/ StrategyAndPlanning.htm.

MATHEMATICS POLICY **ROUND-UP**

The Mathematics Promoters' Network held its second annual New Year Drinks Party at the end of January. Almost 40 mathematics promoters came to De Morgan House to hear the new National STEM Careers Coordinator, Kate Bellingham, discuss her work. Ms Bellingham, a former mathematics teacher and presenter of television science programme Tomorrow's World, explained that she had been tasked to ensure that all young people are made aware of STEM (science, technology, engineering and mathematics) career opportunities and are well prepared to develop the skills needed to pursue them. The mathematics community ensured that Kate understood the particular difficulties it has in this area. Then everyone enjoyed wine, canapés and a chat in the networking part of the evening.

The Royal Society of Chemistry's Chemistry for our Future project has published a report on the readiness of UK chemistry to achieve compliance with the Bologna Process.

MS Newsletter
eneral Editor: Dr D.R.J. Chillingworth (D.R.J.Chillingworth@maths.soton.ac.uk)
ports Editor: Dr S.A. Huggett (s.huggett@plymouth.ac.uk)
views Editor: Mr A.J.S. Mann (a.mann@gre.ac.uk)
lministrative Editor: Miss S.M. Oakes (susan.oakes@lms.ac.uk)
litorial office address: London Mathematical Society, De Morgan House, 57–58 Russell Square, ndon WC1B 4HS (t: 020 7637 3686; f: 020 7323 3655; e: susan.oakes@lms.ac.uk, w: www.lms.ac.uk)
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The report highlights the need for a collaborative approach between subject areas, particularly those with 4-year integrated master's degrees. It calls for the funding councils and research councils to agree on financial responsibility for master's degrees and for two academic years of master's level education to be made widely available in the UK. The report can be found at www.rsc.org/images/ MasterBologna_tcm18-142117.pdf.

The government has launched a new campaign to pull together its STEM initiatives. The Science: [So What? - So Everything] campaign aims to "raise public awareness of how investment in science over the past 10 years has benefited everyone, how a science career can be exciting and rewarding, and how investing in science now will allow us to come out of recession quicker and stronger than our competitors". The campaign includes many of the Government's current STEM initiatives. It is run by the Department for Children, Schools and Families in partnership with the research councils, the British Science Association (formerly the British Association for the Advancement of Science), the British Academy, the Royal Society, the Technology Strategy Board and the Royal Academy of Engineering. For more information visit http://sciencesowhat.direct.gov.uk/index.aspx.

The BBC website ran a somewhat controversial article on how the pool of mathematical skills would be affected should a successful pre-natal test for autism be developed. Professor Simon Baron-Cohen, director of the Autism Research Centre at the University of Cambridge, notes that far higher numbers of males than females apply to his university to study mathematics and computer science. He also notes that people with autism are much more likely to be male and that mathematicians are likely to be closely related to people with autism – and vice versa. If a test for autism were developed, he asks "would we also reduce the number of future great mathematicians, for example?" See http:// news.bbc.co.uk/1/hi/health/7736196.stm.

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An article in the Notices of the American Mathematical Society asked whether student recruitment in the United States was as healthy as figures would initially suggest. David M. Bressoud, presidentelect of the Mathematical Association of America and DeWitt Wallace Professor of Mathematics at Macalester College, argued that although the number of students studying mathematics has increased at undergraduate level, much of this growth can be attributed to the number of engineering students, and indeed the growth in numbers masks a decrease of mathematics students as a percentage of total student enrolments. See www.ams. ora/notices/200901/index.html.

The Wall Street Journal reported that being a mathematician is the best job to have in the United States. It said that 200 professions had been analysed in terms of five criteria: environment, income, employment outlook, physical demands and stress, and concluded that being a mathematician was the best of all, narrowly beating actuaries and statisticians. The WSJ explained, "According to the study, mathematicians fared best in part because they typically work in favorable conditions - indoors and in places free of toxic fumes or noise - unlike those toward the bottom of the list like sewage-plant operator, painter and bricklayer. They also aren't expected to do any heavy lifting, crawling or crouching - attributes associated with occupations such as fire fighter, auto mechanic and plumber." See http://online.wsj.com/ article/SB123119236117055127.html.

Caroline Davis Mathematics Policy and Promotion Officer 3

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NEWSLETTER

ALBERT LEON WHITEMAN MEMORIAL PRIZE

Jeremy J. Gray of the Open University and the University of Warwick was awarded the 2009 American Mathematical Society Albert Leon Whiteman Memorial Prize on 6 January 2009, at the Joint Mathematics

Meetings in Washington, DC. Jeremy was awarded the prize for his many historical works, which not only have shed great light on the history of modern mathematics but also have given an example of the ways in which historical scholarship can contribute to the understanding of mathematics and its philosophy. Presented every three years by the American Mathematical Society. the prize honours notable exposition that centres on the history of mathematics and that reflects exceptional mathematical scholarship.

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MAKING OF A TV DOCUMENTARY

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A lecture by Simon Singh on *Fermat's last theorem: the making of the TV documentary* will be held at 5 pm on 23 March 2009 at University College London, AV Hill Lecture Theatre.



CARDIFF UNIVERSITY 125TH ANNIVERSARY DISTINGUISHED VISITOR LECTURE

Professor Percy Deift (Courant Institute, New York) will give a lecture on *Integrable Systems: A Modern View* as part of Cardiff University's celebrations of its 125th Anniversary. The lecture will take place in Cardiff on 18 March 2009, and will be followed by a reception. For further information contact Michael Levitin (Levitin@cardiff.ac.uk).

Abstract: The modern theory of integrable systems began with the solution of the Korteweg-de Vries equation by Gardner, Greene, Kruskal and Miura in 1967. This led to the development of a variety of new mathematical techniques, and over time, and quite unexpectedly, these techniques have found applications in areas far beyond their dynamical origins. The applications include problems in algebraic geometry, numerical analysis, analytic number theory, combinatorics and random matrix theory, among many others. In the Lecture, the speaker will present some of these techniques and describe some of their applications.

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LMS INVITED LECTURES 2009

Black Holes in a Vacuum: Examples and Uniqueness Properties

Alexandru Ionescu (University of Wisconsin)

31 March – 4 April 2009 University of Edinburgh

These lectures will develop the mathematical theory in General Relativity of black holes and culminate in addressing a fundamental conjecture in this area; namely that the domain of outer communication of a regular, stationary, four-dimensional, vacuum black hole is isometrically diffeomorphic to the domain of outer communication of a Kerr black hole. Research students are particularly encouraged to attend.

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There will be two lectures each morning given by Professor Ionescu, who will cover the following topics:

- Lorentzian geometry: basic definitions
- The Einstein vacuum equations
- Special solutions: Minkowski, Schwarzschild, Kerr
- Stationary regular black holes
- Unique continuation: examples
- The uniqueness of the Kerr solution (3-4 lectures on this topic)

In addition to the lectures given by Professor Ionescu, there will a few more specialised one-hour lectures on certain afternoons. Lectures will begin on Tuesday 31 March and will finish by 2 pm on Saturday 4 April.

All mathematicians are welcome to attend the lectures. There will be a registration fee of ± 30 , payable on arrival. The registration fee will be waived for research students.

Financial support is available to support participants. Priority will be given to research students and mathematicians who would benefit from attending the lectures, but who would otherwise be prevented from attending by financial constraints.

To express interest in taking part in the Invited Lecture Series, contact James Wright (J.R.Wright@ed.ac.uk). For further information, see www.maths.ed.ac.uk/~wright/ lonescu/.

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NEWSLETTER

I NEED YOUR CHILDHOOD STORIES

I appeal to all fellow mathematicians for their recollections of challenges they encountered in their early learning of mathematics. Such stories provide a fascinating insight into the psychology of mathematical thinking and frequently lead to surprisingly deep mathematics.

One example of what I am looking for: a girl aged 6 easily solved 'put a number in the box' problems of the type 7 + [] = 12, by counting how many 1's she had to add to 7 in order to get 12, but struggled with [] + 6 = 11 because she did not know where to start. Worse, she felt for years that she could not communicate her difficulty to adults.

This example is one of many from my forthcoming book *Shadows of the Truth: Metamathematics of Elementary Mathematics* (www.maths.manchester.ac.uk/~avb/MEM.pdf).

Why do I appeal to mathematicians? Because you have language that allows you to express your childhood difficulties – for laymen, my request would be much harder. Please send your stories to borovik@manchester. ac.uk. Please also give me the following details.

- 1. Your age when a particular episode happened
- 2. Your gender

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- 3. What was the language of mathematical instruction? Was it different from your mother tongue?
- 4. What is the level of mathematical education that you eventually attained? Do you teach mathematics?

Alexandre Borovik www.maths.manchester.ac.uk/~avb/

CORRECTION

Peter Pleasants

In the January 2009 *Newsletter*, no. 377, an incorrect age was stated for Dr Peter A.B. Pleasants, who died on 20 April 2008. He was 68.

EWM GENERAL MEETING

The 14th European Women in Mathematics (EWM) General Meeting will be held from 25 to 28 August 2009 at the Department of Mathematics and Informatics, Faculty of Sciences, University of Novi Sad, Serbia, with the following invited speakers:

- Ingrid Daubechies (Princeton University, USA) 2009 EMS Lecturer
- Nalini Anantharaman (Centre de Mathématiques Laurent Schwartz, France)
- Barbara Lee Keyfitz (Ohio State University, USA)
 Jelena Kovačević
- (Carnegie Mellon University, USA)
- Marta Sanz-Solé
 (University of Barcelona, Spain)
- Tatyana Suslina (St Petersburg State University, Russia)
- Reidun Twarock (University of York, UK)
- Brigitte Vallée (CNRS, France)

Ingrid Daubechies, the 2009 European Mathematical Society Lecturer, will deliver three of her EMS lectures at this meeting. For more details about the meeting visit the website at http://ewm2009.wordpress.com.

WALES ANALYSIS WORKSHOPS

Two Wales Analysis Workshops, supported by an LMS Scheme 3 grant and WIMCS, will take place in Swansea as follows:

- 23 April on Semigroups of operators with application to PDEs (organizer Vitali Liskevich: V.A.Liskevich@swansea.ac.uk)
- 7 May on Calculus of variations (organizer Kewei Zhang: K.Zhang@swansea.ac.uk)

For further details and the list of talks, visit www.wimcs.ac.uk/clusters/analysis/index. html#meetings.

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WOME	N IN MATHEMATICS DAY 2009		
The next Women in Mathematics Day will be held on Friday 24 April at De Morgan House. Sessions will include talks and posters by practising women mathematicians in a variety of appointments and at different career stages.			
The organisers would be very grateful if members could encourage women mathematicians, particularly students (including final year undergraduates) and those at an early stage in their career, to attend this meeting. It is hoped that an opportunity to see women who are active and successful in mathematics, and to meet them informally, will be beneficial. Feedback from previous meetings has shown that participants find this useful. While this is an occasion particularly for women active in mathematics to get together, men are certainly not excluded.			
Any postgraduates, postdocs or research assistants interested in giving a talk or presenting a poster during the afternoon session should contact Dr Susan Pitts (S.Pitts@statslab.cam.ac.uk), ideally before 27 February .			
Programme			
10.30–11.00	Registration and coffee		
11.00–13.00	Morning Session (timings tbc)		
	Helen Webster (Met Office) Atmospheric dispersion modelling		
	Beatrice Pelloni (Reading) Generalised Fourier transforms and boundary value problems		
	Eugenia Cheng (Sheffield) An introduction to higher-dimensional category theory		
13.00–14.15	Lunch and Poster Session (starting 13.45)		
14.15–16.15	Afternoon Session Postgraduate/Postdoc speakers		
16.15–16.45	Tea and end of Poster Session		
Followed by a meal for those able to stay.			
To encourage high-quality posters, a ± 50 book token will be awarded for the poster that is judged to be the WiM Day Best Poster 2009.			
Limited funds are available to help with the travel costs of students attending the event. Further details are available from Isabelle Robinson at the Society (contact details below).			
To register please contact Isabelle Robinson (email: isabelle.robinson@lms.ac.uk).			
The day is free for students and $\pounds 5$ for all others – payable on the day.			

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NEWSLETTER

MATRIX AND OPERATOR PENCIL NETWORK

Matrix and Operator Pencil Network (MOPNET) is a new interdisciplinary EPSRC Network to study the linear algebra, analysis, engineering and physics of matrix and operator pencils. Current nodes include Bath, Cardiff (coordinating node), Liverpool, KCL, UCL, Lancaster, Manchester, Birmingham, Nottingham, Reading, Heriot-Watt and Strathclyde.

The Network starts officially on 1 July 2009, although there will be a Meeting Zero in Cardiff from 30 to 31 March 2009, financed by WIMCS and the Cardiff School of Mathematics. We welcome expressions of interest from people and groups who wish to join MOPNET. Further information is at http:// mopnet.cf.ac.uk, or contact Marco Marletta (MarlettaM@cf.ac.uk) and Michael Levitin (Levitin@cardiff.ac.uk).

GRAHAM JAMESON MEETING

The Department of Mathematics and Statistics at Lancaster University will host a one-day meeting on 26 May 2009 in honour of Graham Jameson on the occasion of his retirement, thus celebrating his many significant contributions to the department and the wider UK mathematical community during his 35-year career in Lancaster.

The theme of the meeting will reflect Graham's main research interests: Banach spaces, operators and inequalities. There will be six invited one-hour talks given by:

- Timothy Feeman (Villanova, USA)
- Richard Haydon (Oxford, UK)
- Rafal Latala (Warsaw, Poland)
- Edward W. Odell (Texas, USA)
- Charles J. Read (Leeds, UK)
- Thomas Schlumprecht (Texas A&M, USA)

The meeting will be preceded by a meeting of the North British Functional Analysis Seminar (NBFAS) on Monday 25 May; the NBFAS speaker will be Stephen J. Dilworth (South Carolina, USA). Full details of the meeting (including registration, schedule, travel and accommodation) can be found at www. maths.lancs.ac.uk/jameson. The meeting is supported by an LMS conference grant. There is support available for UK graduate students; the deadline for applications for such support is 1 May 2009; full details are given on the webpage. For more information, please contact the organizer Niels J. Laustsen (n.laustsen@lancaster. ac.uk).

26TH JOURNÉES ARITHMÉTIQUES

The 26th Journées Arithmétiques on all branches of Number Theory and its applications will take place from 6 to 10 July in Saint-Étienne, France. The invited speakers are

- Matthew Baker (Georgia Institute of Technology, Atlanta)
- Yann Bugeaud (Université de Strasbourg)
- Alain Connes (Collège de France, Paris)
- Jean-Marie De Koninck (Université Laval, Québec)
- Manfred Einsiedler (Ohio State University, Colombus; ETH, Zürich)
- Jerzy Kaczorowski (Adam Mickiewicz University)
- Laurent Lafforgue (IHÉS, Bures-sur-Yvette)
- Jeffrey C. Lagarias (University of Michigan)
- Joseph H. Silverman (Brown University)
- Michael Stoll (Universität Bayreuth)
- Jean-Pierre Wintenberger (Université de Strasbourg)
 For further information visit the web-

site at http://ja2009.univ-st-etienne.fr/ or email ja2009@univ-st-etienne.fr.

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This text covers basic techniques from algebra and number theory which have recently proven to be extremely useful for applications to cryptography and coding theory. Public key cryptography is extensively discussed, and quantum cryptography is covered.

2009. XVI, 522 p. 10 illus. (Universitext) Softcover ISBN 978-3-540-69199-0 ► € **49,95 | £39.99**

A Course in Formal Languages, Automata and Groups

I. Chiswell, Queen Mary University of London, U.K.

This comprehensive text uniquely presents a thorough introduction into the connections between group theory and formal languages. It also offers precise definitions, clear and succinct proofs, and an account of the Muller-Schupp theorem.

2009. IX, 157 p. 30 illus. (Universitext) Softcover ISBN 978-1-84800-939-4 ► € 34,95 | £25.00

Graduate Texts in Mathematics Barbara D. MacCluer Elementary Functional Analysis

Springer

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Elementary Functional Analysis

springer.com

B. D. MacCluer, University of Virginia, Charlottesville, VA, USA

This concise text on functional analysis is

gently written and covers a unique set of topics. It includes numerous high-quality exercises and interesting historical tidbits scattered throughout.

2009. X, 208 p. 5 illus. (Graduate Texts in Mathematics, Volume 253) Hardcover ISBN 978-0-387-85528-8 ► € 34,95 | £27.99

Algebraic Function Fields and Codes

H. Stichtenoth, Sabanci University, Istanbul, Turkey

This is an expanded edition of a popular textbook that provides a purely algebraic, self-contained and in-depth exposition of the theory of function fields. It contains numerous exercises, some fairly simple, some quite difficult.

2nd ed. 2009. XIII, 355 p. 14 illus. (Graduate Texts in Mathematics, Volume 254) Hardcover ISBN 978-3-540-76877-7 ► € **39,95 | £31.99**

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NEWSLETTER

The London | Mathematical | Society |



THE LONDON MATHEMATICAL SOCIETY JOINTLY WITH GRESHAM COLLEGE

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Tuesday 5 May 2009 1pm and 6pm at Barnard's Inn Hall, Holborn

(The same lecture will be delivered at 1pm and 6pm)

Mathematics and Smallpox

Professor Tom Körner University of Cambridge

250 years ago Daniel Bernoulli used mathematics and statistics to try to weigh the risks and benefits of innoculation against smallpox. The arguments of Bernoulli and his critics remain relevant today.

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ERGODIC THEORY

A one-day *Ergodic Theory* meeting will be held on Friday 20 March 2009 from 13.15 to 17.00 in the Department of Mathematics, University of Surrey. This is part of a series of collaborative meetings between Bristol University, Liverpool University, Manchester University, Queen Mary, University of London, Surrey University and Warwick University, supported by a Scheme 3 grant from the London Mathematical Society. The invited speakers are:

- Cor Kraaikamp (Delft) Metric properties of α-Rosen fractions
- Max Thaler (Salzburg) On the iteration of the Perron–Frobenius operator of a class of interval maps preserving an infinite measure
- Anish Ghosh (East Anglia) A dynamical approach to some problems in Diophantine approximation

Further details can be found on the webpage at http://personal.maths.surrey. ac.uk/st/H.Bruin/oneday_workshop_20_3_2009.html, or by contacting Henk Bruin (H.Bruin@ surrey.ac.uk, 01483 689253) or Ian Melbourne (I.Melbourne@surrey.ac.uk, 01483 689643).

LOGIC AND MATHEMATICS 09

Logic and Mathematics 09 is to be held at the University of York from 3 to 7 August 2009. The theme is the interaction between ideas or techniques from mathematical logic and other areas of mathematics. Invited speakers are:

- M. Di Nasso (Pisa, Italy)
- S. Gao (North Texas, USA)
- W. Henson (Urbana, USA)
- K. Hrbacek (New York, USA)
- R. Jin (Charleston, USA)
- V. Kanovei (Moscow, Russia)

- J. Keisler (Wisconsin, USA)
- U. Kohlenbach (Darmstadt, Germany)
- T. Lindstrøm (Oslo, Norway),
- P. Loeb (Illinois, USA)

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- M. Rathjen (Leeds, UK)
- D. Ross (Hawaii, USA)
- B. Spitters (Nijmegen, The Netherlands)
- Y. Sun (Singapore)

Scientific Committee: Nigel Cutland (York), Renling Jin (Charleston), Karel Hrbacek (New York), Jeremy Avigad (Pittsburgh). The conference is being supported by an LMS conference grant, the British Logic Colloquium and EPSRC. For further information visit the website at http://maths. york.ac.uk/www/York2009.

SING5

The 5th Spain, Italy, Netherlands Meeting on Game Theory (SING5) will be held at VU University Amsterdam, The Netherlands, from 1 to 3 July 2009. SING5 is the second of these meetings to be held in The Netherlands. The conference programme will consist of a number of invited lectures and contributed papers. Contributions from all over the world are invited and solicited. The meeting is set out to attract specialists with different backgrounds and interests covering all aspects of Game Theory, its applications, and its practice. English is the language of the meeting. Previous editions of this conference were held in:

(SING1, 2005) Maastricht, The Netherlands (SING2, 2006) Foggia, Italy

(SING3, 2007) Madrid, Spain

(SING4. 2008) Wrocław, Poland

This meeting is jointly organized by VU University Amsterdam, University of Amsterdam, Centrum Wiskunde & Informatica and the Tinbergen Institute. For further information visit the website at www. feweb.vu.nl/sing5.

NEWSLETTER

Joint Meeting of the $61^{\rm st}$ British Mathematical Colloquium and the $22^{\rm nd}$ Annual Meeting of the Irish Mathematical Society

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National University of Ireland Galway, 6-9 April, 2009 www.maths.nuigalway.ie/bmc2009

Plenary Speakers

David Eisenbud (UC Berkeley) Ron Graham (UC San Diego) Ben Green (Cambridge) Rostislav Grigorchuk (Texas A&M) Frances Kirwan (Oxford)

Public Lecture

Tom Körner (Cambridge)

Special Sessions

Analysis Computational Algebra

Morning Speakers

Jürgen Berndt (UCC Cork) Tony Carbery (Edinburgh) Rod Gow (UCD Dublin) Martin Kilian (UCC Cork) Ian Leary (Ohio) Tom Laffey (UCD Dublin) Martin Mathieu (Belfast) Éamonn O'Brien (Auckland) Lars Olsen (St Andrews) Hinke Osinga (Bristol) Reidun Twarock (York) Dominic Welsh (Oxford)

Postgraduate Conference and Poster Session, April 6

Satellite conference at Queen's University Belfast, 14-17 April 2009: 3^{rd} International Workshop on Operators and their Applications

The BMC2009/IMS is supported by the London Mathematical Society, the Irish Mathematical Society, Science Foundation Ireland and National University of Ireland Galway.

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BAMC 2009 6 – 9 April 2009 Nottingham

Registration is now open for the British Applied Mathematics Colloquium 2009 (incorporating the 51st British Theoretical Mechanics Colloquium), which will be hosted by the School of Mathematical Sciences at the University of Nottingham.

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We invite participation by researchers from all areas of applied and applicable mathematics; we particularly welcome contributions from postdocs and PhD students.

The conference will have a compact, three-day format, with invited plenary lectures, minisymposia, parallel sessions for contributed talks, and poster sessions beginning on Tuesday, 7 April and finishing on Thursday, 9 April. The programme will include a general interest lecture and an outreach event on Monday, 6 April.

Confirmed Plenary Speakers

Michael P. Brenner (Harvard University) Franco Brezzi (University of Pavia) L. Pamela Cook (University of Delaware) Alain Goriely (University of Arizona) Björn Sandstede (Brown University) Jon Keating (University of Bristol)

Minisymposia

Quantum Chaos & Disordered Systems \blacklozenge Scientific Computation \blacklozenge Cells and Networks \blacklozenge Stochastic Systems and Uncertainty \blacklozenge Multiphase flow in porous media \blacklozenge Approaches to Nanofluidics \blacklozenge Nonlinear Optics and Optical Coherent Structures \blacklozenge Delay and Difference Equations \blacklozenge Regenerative Medicine \blacklozenge Mathematics Education

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The closing date for registration is 2 March 2009. For further information, please see http://www.bamc2009.org.uk/. Please send queries to bamc@nottingham.ac.uk.

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PROBABILITY AT WARWICK YOUNG RESEARCHERS WORKSHOP

The Probability at Warwick Young Researchers Workshop will be held from 20 to 24 July 2009 at Warwick University. 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:

- David Aldous (University of California, Berkeley) One methodology for random graphs and random networks
- Tom Kurtz (University of Wisconsin, Madison) Separation of time scales and averaging of fast subsystems for stochastic chemical reaction models

Registration is now open, with the deadline for the allocation of subsidised places being **1 May 2009**. For further information visit the webpage at www.warwick.ac.uk/ go/paw. The workshop is being supported by an LMS Conference grant.

STOCHASTIC ANALYSIS AND FINANCE

A workshop on Stochastic Analysis and Finance will be held from 29 June to 3 July 2009 at City University of Hong Kong. It is organized in connection with research and teaching activities in mathematics for finance and actuarial science at the Department of Mathematics. The workshop aims to foster communication and dissemination of recent results among researchers in stochastic analysis and mathematical finance. To attend the workshop, register online at www6.cityu.edu.hk/ma/wsaf09 by **15 May 2009**.

VARIATIONAL AND TOPOLOGICAL METHODS AND WATER WAVES

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An EPSRC-funded workshop on Variational and Topological Methods and Water Waves celebrating the 60th birthday of John Toland will be held at the University of Bath from 14 to 16 May 2009.

This workshop addresses nonlinear aspects of PDE theory using variational and topological methods. While there are manifold applications of these modern analytical tools, the topic of water waves will provide a focus, and present an opportunity for mathematicians with a variety of backgrounds, including nonlinear functional analysis, topological degree theory, bifurcation theory and Hamiltonian systems, to meet and review developments. Participants at all levels are welcome, including research students. The list of speakers includes:

- B. Buffoni (Lausanne)
- W. Craig (Hamilton)
- N. Dancer (Sydney)
- G. looss (Nice)
- B. McLeod (Oxford)
- L. Nirenberg (New York)
- P. Plotnikov (Novosibirsk)
- P. Rabinowitz (Madison)
- E. Shargorodsky (London)
- C. Stuart (Lausanne)
- N. Trudinger (Canberra)
- D. Williams (Swansea)

The organizers are G.R. Burton, L.E. Fraenkel and J. Zimmer. Deadline for online registration is **3 April 2009**. For scientific enquiries contact Geoffrey Burton (grb@maths.bath.ac.uk). For administrative enquiries contact Ann Linfield (masadl@bath.ac.uk). For further information visit the website at www.bath.ac.uk/ math-sci/events/waves2009.

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NEWSLETTER



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LTCC INTENSIVE COURSES 2009

Five intensive courses are to be run by the London Taught Course Centre in Spring/ Summer of 2009. These 'one-day' courses typically start at 1 pm on the first day, finish at 1 pm the next day and are open to PhD students throughout the UK and outside. The courses are as follows:

- Causal inference (led by Vanessa Didelez, Bristol) 14–15 May, De Morgan House, London
- L-functions

 (led by Yiannis Petridis, UCL)
 18–19 May, De Morgan House,
 London
- Nonlinear waves and solitons (led by Peter Clarkson, Kent) 21–22 May, University of Kent
- From quantum algebras to total nonnegativity (led by Stephane Launois, Kent) 28–29 May, University of Kent
- Lattice-Boltzmann methods (led by Nick Ovenden, UCL and Paul Dellar, Oxford)
 8–9 June, De Morgan House, London

Supported by EPSRC, the LTCC's aim is that as many PhD students as possible attend. Further details are available at www.ltcc.ac. uk/courses/list.php.

Also, in anticipation of next year's session and subsequent ones, the LTCC would be particularly interested in receiving your suggestions for suitable topics ('hot topics') and lecturers for future intensive courses. Suggestions for next year's session in particular would be best sent to Nisha Jones (LIMS@ucl.ac.uk) or Frank Smith (frank@math.ucl.ac.uk) within the next three months, please.

Funding, available both for organisers and for student participants, can be discussed via the email addresses above.



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Elliptic Partial Differential Equations and Quasiconformal Mappings in the Plane

This book explores the most recent developments in the theory of planar quasiconformal mappings with a particular focus on the interactions with partial differential equations and nonlinear analysis. It gives a thorough and modern approach to the classical theory and presents important and compelling applications across a spectrum of mathematics.

Princeton Mathematical Series Phillip A. Griffiths, John N. Mather, and Elias M. Stein, Series Editors Cloth \$85.00 978-0-691-13777-3

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HISTORY AND PHILOSOPHY OF MATHEMATICS AND COMPUTING

A workshop on the *History and Philosophy of Mathematics and Computing* will be held in the Council Room at University College London on Monday 16 March 2009 at 2.00 pm. The speakers are:

- John Tucker (University of Swansea) Physical foundations of computability
- David Corfield (University of Kent) Albert Lautman and mathematical reality
- Ladislav Kvasz (Comenius University, Bratislava) *Linguistic innovations in the development of mathematics*

After the workshop there will be drinks and a dinner. For further information contact Donald Gillies (donald.gillies@ucl.ac.uk).

DESIGN THEORY AND APPLICATIONS

An international conference on *Design Theory and Applications* will take place from 1 to 3 July 2009 at the National University of Ireland, Galway, Ireland. The conference will celebrate the 50th birthday of Dr Warwick de Launey and his many achievements in design theory. The broad theme of the conference is all areas of design theory, especially Hadamard matrices and their generalizations. Talks dealing with (i) applications of design theory, and (ii) computational aspects of design theory, are particularly encouraged and welcome. The speakers are:

- V. Álvarez (Universidad de Sevilla, Spain)
- K.T. Arasu (Wright State University, USA)
- P. Cameron (Queen Mary University of London, UK)
- R. Craigen (University of Manitoba, Canada) to be confirmed

- W. de Launey (Center for Communications Research, USA)
- J. Dillon (National Security Agency, USA)
- D. Flannery (National University of Ireland, Galway, Ireland)
- K. Horadam (RMIT University, Australia)
- H. Kharaghani (University of Lethbridge, Canada)
- M. Matolcsi (Alfréd Rényi Institute, Hungary)
- J. Seberry (University of Wollongong, Australia)
- R.M. Stafford (National Security Agency, USA)

Refereed articles will be published in a special issue of the journal *Cryptography* and *Communications: Discrete structures, Boolean functions and sequences.* For further information visit the website at http:// larmor.nuigalway.ie/~detinko/DeSign.htm.

COMBINATORICS AT OXFORD

A one-day meeting in *Combinatorics* will be held in Oxford on Wednesday 18 March 2009. 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 will be

- M. Drmota (Vienna)
- P. Haxell (Waterloo)
- M. Schacht (Berlin)
- M. Simonovits (Budapest)
- K. Vuskovic (Leeds)

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 web at www.maths.ox.ac.uk/groups/combinatorics. The event is supported by an LMS conference grant and the British Combinatorial Committee. ۲



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ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES

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PLANETESIMAL FORMATION

28-30 September 2009

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

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

Theme of workshop: The enormous diversity of the over 300 extra-solar planets discovered to date challenges our understanding of the planet formation process. A crucial first stage is the formation of kilometer- and larger-sized planetesimals from microscopic interstellar dust grains in protoplanetary discs. This workshop, organised as part of the four-month long programme *The Dynamics of Discs and Planets*, will address some of the key issues associated with the formation of planetesimals in discs, including

- the coupled dynamics of gas and dust in protoplanetary discs
- the growth of grains
- gravitational instabilities in discs

Both the theory and observational constraints will be reviewed. Only a few review-style talks will be given each day, leaving plenty of time for open discussion. Poster presentations by all participants are strongly encouraged.

Further information and application forms are available from: www.newton.ac.uk/programmes/DDP/ddpw02.html. Completed application forms should be sent to Tracey Andrew, Programme & Conference Secretary, Isaac Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH or via email to: t.andrew@newton.cam.ac.uk.

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Closing date for the receipt of applications is 30 June 2009.

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RECORDS OF PROCEEDINGS AT MEETINGS

REGIONAL ORDINARY MEETING

held on *Wednesday 14 January 2009* at the University of Manchester, at the end of the Postgraduate Student Conference, *MAGIC09*. At least 75 members and visitors were present for all or part of the meeting.

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The meeting began at 2.00 pm, with the Vice-President, Professor F.A. ROGERS in the Chair. Three members signed the book and were admitted to the Society.

Professor A.J. WILKIE, FRS, introduced a lecture given by Professor I. Leader on *Euclidean Ramsey Theory.*

Professor N. RAY introduced a lecture given by Professor K. Hess on *Free loop spaces in topology and physics.*

After tea, Professor R.J. PLYMEN introduced a lecture given by Professor P. Baum on What is K-theory and what is it good for?

Professor Rogers expressed the thanks of the Society to the University of Manchester, the organisers and the speakers for putting on such an excellent meeting.

After the meeting a dinner was held at the Tai Pan Restaurant, Manchester.

REVIEWS

Taming the Infinite: the Story of Mathematics by Ian Stewart, Quercus Publishing, 2008, 272 pp, ISBN 978-1-84724-181-8.

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Ian Stewart's latest volume looks at first sight like a coffee-table book. It's extremely glossy and packed with pictures, with the page layout and style of a good quality textbook. However, reading it reveals that it is in fact an expansive and exhilarating history of mathematics.

We start with the earliest beginnings of mathematics, from the Lebombo bone with its 37,000-year-old markings, through the Babylonians and Egyptians at breakneck pace, reaching Pythagoras by page 22! After this the book is ordered more by topic than by chronology, and early chapters include the development of the Hindu–Arabic number system and its eventual transmission to Europe, the slow beginnings of abstract algebra as it emerged from roots both verbal and geometric, and the history of trigonometry and logarithms from Aristarchus to Napier. The birth of calculus is covered in some detail, including various of its immediate precursors,

NEWSLETTER

with an intriguing discussion of the wideranging applicability of differential equations to the physical world. Approaching the present day, the book becomes even more impressive in its spread. Amongst many other subjects, we look at the invention of complex analysis, non-euclidean geometry, group theory and Lie algebras. There's a whirlwind overview of topology, finishing with Perelman's proof of the Poincaré conjecture. We look at the foundations of mathematics, starting with Dedekind's construction of the reals, via axioms for the natural numbers and on to Gödel's theorems, and finish with a chapter on chaos and complexity.

The book is structured in extremely short chapters, perhaps with use as a textbook in mind. Each chapter discusses a mathematical topic and includes various boxes set apart from the main text, presenting biographies, mathematical background, and practical applications. As a representative example, the chapter on number theory includes: 'What number theory did for them' (a discussion of the Antikythera device); 'What number theory does for us' (RSA encryption); a short piece on Mersenne primes and the current largest known prime; an introduction to the Goldbach and Twin Primes Conjectures; and short biographies of Gauss, Fermat and Germain – all in addition to the main sweep of history from Euclid to Wiles.

This book will appeal to mathematicians, lay readers and teachers of the history of mathematics. It gradually becomes more technical as it progresses, so that even the expert should find something that fascinates them. I might quibble with the lack of a timeline anywhere in the book – the justification for the study of mathematics by topic rather than chronology is fully accepted, but it would still be nice to be able to see the relative progression of different areas more clearly – but this is a minor fault in a work of such scope. Most importantly, and as you would expect from Ian Stewart, this book is a thoroughly good read!

> Colva Roney-Dougal St Andrews University

CALENDAR OF EVENTS

This calendar lists Society meetings and other events publicised in the *Newsletter*. Further information can be obtained from the appropriate LMS *Newsletter* whose number is given in brackets. A fuller list of meetings and events is given on the Society's website (www.lms.ac.uk/newsletter/calendar.html). Α

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MARCH 2009

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3 How to be a Winner: The Maths of Race Fixing and Money Laundering, Gresham Lecture, London (375) **16** History and Philosophy of Mathematics and Computing Workshop, University College London (379) 18 Combinatorics Meeting, Oxford (379) 18 Cardiff University 125th Anniversary Distinguished Visitor Lecture, Cardiff (379) **20** Ergodic Theory Meeting, Surrey (379) 23 Fermat's Last Theorem: the making of the TV documentary, University College London (379) 23-25 Mathematical Neuroscience Conference, Royal Society of Edinburgh (378) 23-27 UK Graduate Modelling Week, LMS-EPSRC Short Course, Nottingham (377) 23-27 Algebraic Lie Structures with Origins in Physics Workshop, INI, Cambridge (373) 23-27 Ouantum Discrete Integrable Systems Workshop, INI, Cambridge (377) 26 Bakerian Prize Lecture, J. Murray, The Royal Society, London (378) 30-31 Matrix and Operator Pencil Network, Cardiff (379) 30-2 Apr Variational Problems in Differential Geometry Workshop, Leeds (377) 30-3 Apr Mathematics of Weather and Climate Prediction Meeting, Meteorological Office, Exeter (376) 30-3 Apr Geometric Aspects of Discrete and Ultra-Discrete Integrable Systems Workshop, Glasgow (378) 31-4 Apr LMS Invited Lectures, A. Ionescu, Edinburgh (379)

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APRIL 2009

6-7 Representations and Asymptotic Group Theory Workshop, Southampton (378)
6-9 BMC, Galway (379)
6-9 BAMC, Nottingham (379)
13-18 Categorification and Geometrisation from Representation Theory Meeting, Glasgow (378)
14-17 Elementary Operators and Applications Workshop, Belfast (378)
20-22 Atiyah80: Geometry and Physics Workshop, Edinburgh (375)
23 Semigroups of Operators with Application to PDEs, Wales Analysis Workshops, Swansea (379)

24 Women in Mathematics Day, London (379)

MAY 2009

5 Mathematics and Smallpox, LMS–Gresham College joint lecture, London (379) 7 Calculus of Variations, Wales Analysis Workshops, Swansea (379) 9-17 Variational Analysis and Applications Workshop, Sicily (378) 11-13 Mathematical Models of Collective Dynamics in Biology and Evolution Meeting, Leicester (377) 14-15 Causal Inference LTCC Intensive Course, London (379) 14-16 Variational and Topological Methods and Water Waves Workshop, Bath (379) 18-19 L functions LTCC Intensive Course, London (379) 21-22 Nonlinear Waves and Solitons LTCC Intensive Course, Kent (379) 25 North British Functional Analysis Seminar (NBFAS), Lancaster (379) 26 Graham Jameson Meeting, Lancaster (379)28-29 From Quantum Algebras to Total Non-Negativity LTCC Intensive Course, Kent (379)

JUNE 2009

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8-9 Lattice-Boltzmann Methods LTCC Intensive Course, London (379)
8-11 British–Nordic Congress of Mathematicians, Oslo (374)
9-12 Mathematics of Finite Elements and Applications Conference, Brunel University (378)

9-15 Algebraic Topology, Group Theory and Representation Theory Conference, Isle of Skye (376)

15-19 Nonlinear PDE and Free Boundary Problems, Warwick

22-26 Quantum Chaos LMS–EPSRC Short Course, Nottingham (379)

22-26 Representation Theory and Lie Theory Workshop, INI, Cambridge (376)
29-3 July Discrete Systems and Special Functions Workshop, INI, Cambridge (375)
29-3 July Stochastic Analysis and Finance Workshop, City University of Hong Kong (379)

JULY 2009

1-3 Design Theory and Applications Conference, National University of Ireland, Galway (379) 1-3 Game Theory SING5, Amsterdam, The Netherlands (379) 3 LMS Society Meeting, London 5-10 22nd British Combinatorial Conference. St Andrews (378) 6-10 26th Journées Arithmétiques, Saint-Étienne, France (379) 13-18 7th ISAAC Congress, London (377) 15-16 Sparse Matrices for Scientific Computation Meeting, Abingdon, Oxford (377)20-24 The Cardiac Physiome Meeting, INI, Cambridge (378) 20-24 Probability at Warwick Young Researchers Workshop, Warwick (379) 27-31 Non-Abelian Fundamental Groups in Arithmetic Geometry Introductory Workshop, INI, Cambridge (379)

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W.H.H. HUDSON LMS member 1868–1914



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William Henry Hoar Hudson, MA, LLM, FCPS Fellow of St John's College, Cambridge Fellow of King's College, London Professor of Mathematics, King's College, London, and Queen's College, Harley Street

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