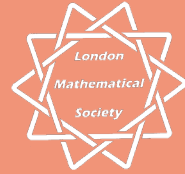


# THE LONDON MATHEMATICAL SOCIETY



## NEWSLETTER

No. 366 January 2008

### Society Meetings and Events

#### 2008

**Monday 7 January**  
JM Meeting, San Diego

**Friday 8 February**  
Mary Cartwright  
Lecture, Oxford  
[page 3]

**Monday 31 March**  
Northern Regional  
Meeting, Manchester

**Friday 25 April**  
Women in  
Mathematics Day  
London [page 20]

**Monday 9 June**  
Midlands Regional  
Meeting, Birmingham

**Friday 4 July**  
London

**Monday 15 September**  
SW & South Wales  
Regional Meeting  
Swansea

**Monday 15 September**  
Computer Science Day  
London

**Friday 21 November**  
AGM, London

**12–13 December**  
Joint Meeting with  
the Edinburgh  
Mathematical Society  
Edinburgh

### COUNCIL DIARY

#### 23 November 2007

The last Council meeting of 2007 had the earlier start of 11 am, and a fairly brief agenda, to allow members to attend the Society's AGM and afternoon programme of lectures.

Following the discussion at October's meeting, Council examined membership trends over the past twenty years. It was felt that membership levels reflected the Society's origins in pure mathematics, and we should aim for a higher proportion of applied mathematicians to join than does so at present.

There were a couple of items relating to the Society's Library and Archives. The Library Committee is formulating policies on potential donations for the LMS Archive and also for donations of mathematics books. The Society is very grateful for those generous offers it receives, and these policies will outline the procedure to be adopted in such cases. Council discussed drafts of both policies, which will be revised by the Library Committee and will ultimately be available on the Society's website.

Council was brought up to date on the activities of the Council for the Mathematical Sciences (CMS). Of particular

interest to members are the recent CMS/HoDoMS survey of university mathematics departments and the issue of RAE metrics. The full data for the CMS/HoDoMS survey can be found on the CMS website ([www.cms.ac.uk/news.html](http://www.cms.ac.uk/news.html)), and include information on undergraduate and postgraduate student numbers, and profiles of academic staff in terms of age/gender/grade and country of first degree. For example, 44% of lecturers have a first degree from outside the UK. HEFCE has recently opened a consultation on research assessment post-RAE 2008, and the CMS will be responding, as this has major implications for mathematical research.

The work of the Next Steps Initiative, which is developing the framework for a possible merger with the Institute of Mathematics and its Applications, continues, and Council learned that there would be reports from the working groups in the Spring of 2008, when Council would be reflecting at length about whether to proceed further. Council was concerned that members were reticent when it came to expressing their views on this matter, and felt that vigorous debate (on both sides) is vital in this important process.

The Council closed by extending its thanks to those whose time on Council was now ending, namely Rob Curtis, Alison Etheridge and Sir John Kingman.

Vice-President Alice Rogers then, on behalf of the Council, warmly thanked the outgoing President, Professor John Toland, for his leadership and service to the Society.

Elizabeth Winstanley

## CHANGES TO THE BY-LAWS

At the AGM on 23 November 2007, changes to the By-Laws were approved. The changes were announced in, and circulated with, the October *Newsletter*. These were approved as circulated, except for one minor alteration – the final sentence of By-Law III.2 to read “A means of electronic voting may also be provided

for the member to use if preferred as an alternative to the ballot paper” (removing “he or she wishes” and replacing with “preferred”).

Enclosed with this *Newsletter* is a copy of the new By-Laws, which are also available at [www.lms.ac.uk/policy/by-laws.html](http://www.lms.ac.uk/policy/by-laws.html).

One change will affect some existing members. The concession by which those who have been members for 30 years and reach the age of 65 may have their subscription waived has been removed. The concession of free membership remains for *all* members in membership for 35 years. In order not to affect adversely those members who would have benefited in the near future under the first concession, Council has agreed a phased introduction of this change. Members who are affected by this will be notified individually.

Peter Cooper  
Executive Secretary

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Typeset by the London Mathematical Society at De Morgan House; printed by Holbrooks Printers Ltd.

Publication dates and deadlines: published monthly, except August.

Items and advertisements by the first day of the month prior to publication.

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Charity registration number: 252660.

## LONDON MATHEMATICAL SOCIETY

### MARY CARTWRIGHT MEETING

Friday 8 February 2008, 4.30 pm

Oxford University Museum of Natural History  
Parks Road, Oxford OX1 3PW

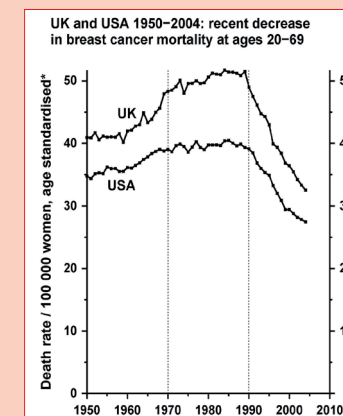
### *Mathematics of medicine: breast cancer treatment and prevention*

Sir Richard Peto FRS (Oxford)

Mary Cartwright Lecture

Valerie Beral FRS (Oxford)

Valerie Beral and Richard Peto will describe worldwide evidence on the causes and treatment of breast cancer. The evidence comes from large-scale collaborations, where hundreds of researchers from around the world meet regularly in Oxford and contribute, for central review and analysis, information on hundreds of thousands of women with breast cancer. The findings from these international collaborations have changed clinical practice over the last two decades. Consequently, large reductions in mortality from breast cancer are being seen.



There will be tea before the meeting from 4 pm at the Museum. The meeting will start at 4.30 pm with a short business meeting of the Society, to which all are welcome.

After the meeting a reception will be held at the Mathematical Institute from 6.30 pm to 7.30 pm. The reception will be followed by a dinner at Carluccio's at a cost of £26 per person, inclusive of wine. Those wishing to attend the dinner should inform Susan Oakes ([susan.oakes@lms.ac.uk](mailto:susan.oakes@lms.ac.uk)) no later than **Monday 4 February**.

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

## 2007–08 COUNCIL

As a result of the annual election, membership of the Council is the following:

<b>President</b>	Professor E.B. Davies FRS (King's College London)
<b>Vice-Presidents</b>	Professor D.G. Larman (University College London) Professor F.A. Rogers (King's College London)
<b>Treasurer</b>	Professor N.M.J. Woodhouse (Oxford)
<b>General Secretary</b>	Professor C.M. Goldie (Sussex)
<b>Programme Secretary</b>	Dr S.A. Huggett (Plymouth)
<b>Publications Secretary</b>	Professor K.J. Falconer FRSE (St Andrews)
<b>Education Secretary</b>	Professor C.J. Budd (Bath)
<b>Members-at-Large</b>	Professor A.V. Borovik (Manchester) Dr J.E. Barrow-Green (Open University) Dr D.E. Buck (Imperial College London) Professor S.N. Chandler-Wilde (Reading) Professor H.G. Dales (Leeds) Dr P.J. Davies (Strathclyde) Dr I.G. Gordon (Glasgow) Professor A. Laptev (Imperial College London) Professor R.M. Thomas (Leicester) Professor B.J. Totaro (Cambridge) Professor A.J. Wilkie (Oxford) Dr E. Winstanley (Sheffield)

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## ANNUAL REPORT ON ACTIVITIES

The *Annual Report on Activities* for the period 1 September 2006 – 31 July 2007 is now available to view online at [www.lms.ac.uk/contact/about\\_the\\_lms.html](http://www.lms.ac.uk/contact/about_the_lms.html).

The *ARA* aims to present the Society's achievements during the period in an interesting and readable way, and in doing so the report gives a good overview of the range of activities that the Society is involved in. It is hoped that members will take pleasure in referring to the many activities their membership supports, and will find it useful when describing the Society's work to others.

Several copies of the *ARA* have been sent to each UK mathematics department for 'coffee table' use; members may request their own copies by contacting De Morgan

House. As ever, feedback on the effectiveness of this report is also welcomed. Copies of the *Trustees' Report and Annual Accounts* (a more formal document prepared for the Charity Commission) are also available on request.

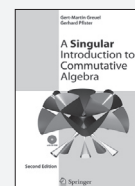
## PRIZES DEADLINES

Readers are reminded that the deadline for receipt of nominations for the 2008 LMS Prizes is **25 January**. Prizes available in 2008 include the *Pólya Prize*, the *Senior Berwick Prize*, the *Fröhlich Prize* and up to four *Whitehead Prizes*. A nomination form can be downloaded from [www.lms.ac.uk](http://www.lms.ac.uk). The deadline for the IMA–LMS *Christopher Zeeman Medal* is **31 January**. For full details of all these prizes please see the December LMS *Newsletter* (No. 365) or email [prizes@lms.ac.uk](mailto:prizes@lms.ac.uk).



springer.com

## New from Springer



### A Singular Introduction to Commutative Algebra

G. Gruel, G. Pfister, University of Kaiserslautern, Germany

This substantially enlarged second edition aims to lead a further stage in the computational revolution in commutative algebra. This is the first handbook/tutorial to extensively deal with SINGULAR. Among the book's most distinctive features is a new, completely unified treatment of the global and local theories.

2nd, extended ed. 2008. XX, 690 p. 49 illus.  
With CD-ROM. Hardcover  
ISBN 978-3-540-73541-0 ► € 49,95 | £38.50

### Advanced Linear Algebra

S. Roman, Irvine, CA, USA

This book covers an especially broad range of topics. The first part details the basics of linear algebra. Coverage then proceeds to a discussion of modules, emphasizing a comparison with vector spaces. A thorough discussion of inner product spaces, eigenvalues, eigenvectors, and finite dimensional spectral theory follows, culminating in the finite dimensional spectral theorem for normal operators.

3rd ed. 2008. XVIII, 526 p. 23 illus. (Graduate Texts in Mathematics, Volume 135) Hardcover  
ISBN 978-0-387-72828-5 ► € 54,95 | £42.50

### Applied Linear Algebra and Matrix Analysis

T. S. Shores, University of Nebraska, Lincoln, NE, USA

This text is intended for a one or two semester sophomore level course in linear algebra. It is designed to provide a balance of applications, theory and computation, and to emphasize their interdependence. It provides background for numerous projects, which frequently require computational tools, but is not tied to any one computational platform. A comprehensive set of exercises and projects is included.

2007. XII, 388 p. 27 illus. (Undergraduate Texts in Mathematics) Softcover  
ISBN 978-0-387-33195-9 ► € 32,95 | £25.50

### Differential Analysis on Complex Manifolds

R. O. Wells, Jr., Jacobs University Bremen, Germany

This comprehensive book presents a concise introduction to the basics of analysis and geometry on compact complex manifolds. It presents in its opening chapters a detailed survey of recent progress in four areas: geometry (manifolds with vector bundles), algebraic topology, differential geometry, and partial differential equations. The new edition contains a 40 page appendix which updates the text.

3rd ed. 2008. XIV, 304 p. (Graduate Texts in Mathematics, Volume 65) Hardcover  
ISBN 978-0-387-73891-8 ► € 46,95 | £36.00

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### LMS INVITED LECTURE 2008

#### **Professor Andrei Okounkov Random Surfaces**

7–11 April 2008

The 2008 LMS Invited Lectures will be given by Professor Andrei Okounkov (Princeton) on Random Surfaces. The Lectures will take place at the Institute for Mathematical Sciences, Imperial College London from 7 to 11 April.

There will also be lectures by Nekrasov, Szendrői and others. For further information contact Richard Thomas ([richard.thomas@imperial.ac.uk](mailto:richard.thomas@imperial.ac.uk)) or visit the website [www.ma.ic.ac.uk/~rpwt/LMS.html](http://www.ma.ic.ac.uk/~rpwt/LMS.html).

### LMS AND IMA DISCUSSIONS

#### **Comments sought**

The LMS and IMA joint planning group is developing a model that if implemented would lead to the replacement of both the Institute of Mathematics and its Applications and the London Mathematical Society by a new society.

As this work progresses, members are invited to send views directly to the group and can be assured that all comments received will be brought to the attention of the group at its next meeting. Although the NSI group does not guarantee to reply to all messages it may on occasion choose to do so. The email address to use is [nsicontact@btinternet.com](mailto:nsicontact@btinternet.com).

### **MATHEMATICS POLICY ROUND-UP**

The Higher Education Funding Council for England (HEFCE) is consulting on new proposals for assessing and funding research. Assessment will take place in “six or seven broad subject groups covering the sciences, engineering, technology and medicine; and a larger number of subject groups for the arts, humanities, social sciences and mathematics and statistics”. The new system will place more emphasis on metrics, particularly for the science-based disciplines, but the mathematical sciences will not be included in this grouping. HEFCE states: “a new light touch peer review process informed by metrics will operate for the other disciplines (the arts, humanities, social sciences and mathematics and statistics) in 2013. We have not undertaken significant development work on this to date” and asks for preliminary views on how this should be done. It is proposed that computer science will be grouped with engineering in future. The Heads of Departments of the Mathematical Sciences will respond to this, as will the

Council for the Mathematical Sciences. More details at [www.hefce.ac.uk/news/hefce/2007/ref.asp](http://www.hefce.ac.uk/news/hefce/2007/ref.asp).

Celia Hoyles retired from her role as Chief Adviser for Mathematics to the Government in November after three “exciting and fulfilling years”. The post was created in 2004 in response to Adrian Smith’s report on post-14 mathematics education in the same year. Her role was to champion mathematics in government, take a lead in the development implementation of its post-14 strategy and work closely with other stakeholders in mathematics. She will now concentrate on her positions as Director of the National Centre for Excellence in the Teaching of Mathematics and as Professor of Mathematics Education at the Institute of Education. She will not be replaced at the Department for Children, Schools and Families, but the Advisory Committee for Mathematics Education hopes to take on some of the Chief Advisor’s role.

Caroline Davis  
Mathematics Policy and Promotion Officer

### **LMS LIBRARY – REGISTRATION PROCEDURES**

Members should note that UCL Library now requires all (non-UCL) applicants to provide photographic proof of identity and proof of address when registering or renewing their library access cards. Details of acceptable documents for this purpose and further information can be found at [www.ucl.ac.uk/Library/soc.shtml](http://www.ucl.ac.uk/Library/soc.shtml) – please check this list before making a journey to UCL.

We have been reassured that members may still register or renew by post by printing and completing the application form available at [www.ucl.ac.uk/Library/borapp.shtml](http://www.ucl.ac.uk/Library/borapp.shtml),

indicating that they are applying as members of the London Mathematical Society and enclosing a passport-sized photograph as usual. Members are advised that this is still the simplest way to obtain a library card, as it avoids the need to produce an acceptable form of identification or proof of address, which would be required if visiting in person. This is a special arrangement between the Society and UCL for the benefit of our members.

Queries and comments should be addressed to [lib-membership@ucl.ac.uk](mailto:lib-membership@ucl.ac.uk), telephone (020) 7679 7110.



LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

Department of Mathematics

Lectureship in Mathematics

Salary: £38,212 - £44,920 pa. incl.

Applications are invited for a new, career-track Lectureship in Mathematics.

Candidates should have a track record of excellent research in some area of financial mathematics. The appointee will be expected to maintain an active programme of research, and to play a significant role in the Financial Mathematics MSc programme.

Ideally, the post will commence on or before 1 September 2008.

Information about the department can be found at [www.maths.lse.ac.uk](http://www.maths.lse.ac.uk).

A full application pack can be obtained at [www.lse.ac.uk/jobsatLSE](http://www.lse.ac.uk/jobsatLSE). If you cannot download the pack, email [HR.Recruit.Lec@lse.ac.uk](mailto:HR.Recruit.Lec@lse.ac.uk) or call 020 7955 6718 quoting reference LEC/07/19.

**The closing date for the receipt of applications is 28 January 2008.**

**Regrettably, we are unable to accept any applications that are received after this date.**

*We value diversity and wish to promote equality at all levels*

## LONG-STANDING MEMBERS

The following is a list of mathematicians who have completed fifty years or more of membership of the London Mathematical Society, with their date of election.

17 Dec '40 Good, I.J.	17 May '51 Roth, K.F.	12 May '55 Harrop, R.
17 Mar '43 Dyson, F.J.	14 Jun '51 Jackson, M.	15 Dec '55 Armitage, J.V.
15 Jun '44 Williams, A.E.	14 Jun '51 Ledermann, W.	15 Dec '55 Butler, M.C.R.
25 Jan '45 Ollerenshaw, K.	20 Dec '51 Herszberg, J.	19 Jan '56 Bowers, J.F.
25 Jan '45 Collard, K.	20 Dec '51 Dowker, Y.N.	15 Mar '56 Edmunds, D.E.
28 Jun '45 Tropper, A.M.	17 Jan '52 Wilson, D.H.	15 Mar '56 Horrocks, G.
25 Apr '46 Rothman, M.	15 Feb '52 Shephard, G.C.	19 Apr '56 Penrose, R.
23 May '46 Huppert, E.L.	20 Mar '52 Bonsall, F.F.	14 Jun '56 Perry, R.L.
23 May '46 Rees, D.	20 Mar '52 Swinnerton Dyer, H.P.F.	14 Jun '56 Noble, M.E.
19 Dec '46 Higman, G.		14 Jun '56 Collins, W.D.
16 Jan '47 Macbeath, A.M.	20 Nov '52 Knight, A.J.	15 Nov '56 Edwards, D.A.
20 Mar '47 Hayman, W.K.	18 Dec '52 Reeve, J.E.	14 Mar '57 Dunnage, J.E.A.
22 May '47 Ghaffari, A.	18 Jun '53 Rayner, M.E.	14 Mar '57 Brown, R.
19 Jun '47 Cassels, J.W.S.	18 Jun '53 Marstrand, J.M.	13 Jun '57 Brown, A.L.
27 Nov '47 Hilton, P.J.	17 Dec '53 Ringrose, J.R.	13 Jun '57 Wiegold, J.
18 Mar '48 Isaacs, G.L.	17 Dec '53 Samet, P.A.	18 Jun '57 Russell, D.C.
18 Mar '48 Reade, M.O.	21 Jan '54 Zeeman, E.C.	21 Nov '57 Wallington, J.E.
17 Jun '48 Bateman, P.T.	18 Feb '54 Cohen, D.E.	19 Dec '57 Monk, D.
18 Nov '48 Mullender, P.	18 Feb '54 James, I.M.	19 Dec '57 Adamson, I.T.A.C.
13 Dec '48 Fishel, B.	17 Jun '54 Taylor, S.J.	19 Dec '57 Longdon, L.W.
20 Jan '49 Borwein, D.	25 Nov '54 Amson, J.C.	19 Dec '57 Moran, S.
17 Mar '49 Kilmister, C.W.	25 Nov '54 Halberstam, H.	19 Dec '57 Hall, J.A.P.
28 Apr '49 Austin, M.C.	16 Dec '54 Preston, G.B.	19 Dec '57 Schneider, H.
19 Jan '50 Shepherdson, J.C.	27 Jan '55 Atiyah, M.F.	19 Dec '57 Mohamed, I.J.
16 Feb '50 Lehner, J.	24 Feb '55 Rayner, F.J.	19 Dec '57 Newman, M.F.
23 Mar '50 Ponting, F.W.	24 Mar '55 Farahat, H.K.	19 Dec '57 Divinsky, N.J.
14 Dec '50 Patterson, E.M.	12 May '55 Murdoch, B.H.	19 Dec '57 Everitt, W.N.
19 Apr '51 Chen, D.L.C.	12 May '55 Wall, G.E.	

## LMS GRANT SCHEMES 1–5

Members are reminded of the Society's Schemes to provide conference grants (Scheme 1), grants to visitors to the UK (Scheme 2), grants to support joint research groups (Scheme 3), collaborative small grants (Scheme 4) and international short visits (Scheme 5). For full details of all the Schemes please see the Society's website ([www.lms.ac.uk/grants/index.html](http://www.lms.ac.uk/grants/index.html)).

Queries regarding applications can be addressed to the Programme Secretary, Stephen Huggett (tel: 01752 232710, email: [s.huggett@plymouth.ac.uk](mailto:s.huggett@plymouth.ac.uk)) or the Secretary to Programme Committee, Sylvia Daly (tel: 020 7291 9971, email: [sylvia.daly@lms.ac.uk](mailto:sylvia.daly@lms.ac.uk), Wednesday–Friday) who will be pleased to discuss proposals informally with potential applicants and give advice on the submission of an application.

The next deadline for receipt of applications is **31 January 2008** and these will be considered at a meeting on 21 February 2008. 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.

### Closing dates for 2008

Future deadlines for receipt of applications are 15 May and 15 September 2008, and these will be considered at meetings in June and October respectively.

## Grants Awarded between April and October 2007

### Scheme 1

Applicant	Title	Grant
N. Ray	New Horizons in Toric Topology	£5,500
A. Craw	60 Miles: a Conference in Honour of Miles Reid's 60th Birthday	£4,500
J.H. Merkin	Fundamentals and Techniques in Applicable Fluid Dynamics	£1,470
S.S. Dantchev	Algorithms and Complexity in Durham	£2,000
S.M. Goodwin	Groups and Symmetries: A Conference in Celebration of Rob Curtis' Contribution to Mathematics and to Celebrate his Sixtieth Birthday	£4,500
G. Akemann	III Brunel Workshop on Random Matrix Theory	£3,250
J.A. Mackenzie	Scottish Computational Mathematics Symposium	£1,200
T. Jordan (Organiser: D. Thompson)	Chaotic Properties of Dynamical Systems: Dimension Theory and Non-Uniformly Hyperbolic Dynamics	£4,395
J.R. Whiteman	The Legacy of John Crank – Developments in Time Dependent PDEs, Diffusion and Free Boundary Problems	£4,000
M.M. Dodson, S. Donkin, C.M. Wood	60th British Mathematical Colloquium	£10,000
A. Astolfi, D.Q. Mayne	Analysis and Design of Nonlinear Control Systems	£4,000
J.J. Ward, T.C. Hurley	British Mathematical Colloquium 2009 (& joint meeting with Irish Mathematical Society)	£8,000
J.R. Parker	Complex Analysis and Related Topics: Alan Beardon Retirement Meeting	£2,650
M. Paterson (Organiser: H. Aziz)	19th Postgraduate Combinatorial Conference (PCC 2008)	£2,232
A. Lazarev	Algebraic Structures in Geometry and Physics	£5,000



**Scheme 2**

Applicant	Visitor	To Visit	Grant
N. Leonenko	F. Avram	Heriot-Watt, Swansea, Cardiff	£1,000
M. Kambites	G. Ostheimer	Warwick, Manchester, Newcastle	£1,200
I. Barany	M. Reitzner	University College London/ London School of Economics, Oxford, Cambridge	£650
Y. Safarov	D. Jakobson	King's College London, Loughborough, Bristol	£1,050
M. Mathieu	L.W. Marcoux	Lancaster, QUB, Cork	£1,067
J.D. Mitchell	U.B. Darji	St Andrews, University College London, Warwick	£1,200
D. Panov	J-Y. Welschinger	Cambridge, Imperial College, Oxford	£800
H.R. Dullin	J.D. Meiss	Bristol, Imperial College, Loughborough	£1,200
A. Premet	I. Loseu	Manchester, Edinburgh, Warwick, York	£1,100
M. Daws	N. Spronk	Lancaster, Glasgow, Leeds	£1,200
M.A. Dritschel	C. Badea	Oxford, Glasgow, Newcastle	£940
A. Zsak	M. Ilie	Leeds, Lancaster, QMUL	£1,200
P. Ashwin, S. Wieczorek	M. Krupa	Exeter, Bristol, Surrey	£700

**Scheme 3**

Applicant	Institution	Title	Grant
V. Kolokoltsov	Warwick	Interactions and Non-Commutativity	£1,200
G.K. Sankaran	Bath	Algebraic Geometry Seminar (COW)	£404
S. Rees	Newcastle	North British Geometric Group Theory (NBGGT) Seminar	£1,050
A.P. Fordy	Leeds	Classical and Quantum Integrability	£1,400
N. Snashall	Leicester	Bristol Leicester Oxford Colloquium (BLOC)	£1,050
X-M. Li	Warwick	East Midlands Stochastic Analysis Seminar	£1,400
S. Pott	Glasgow	North British Functional Analysis Seminary (NBFAS)	£1,000
J. Brodzki	Southampton	K-theory and Analysis	£1,400
R.J. Sharp	Manchester	Ergodic Theory	£1,400

**Scheme 3 (continued)**

Applicant	Institution	Title	Grant
J.P.C. Greenlees	Sheffield	Transpennine Topology Triangle	£1,400
R.B. Hoyle	Surrey	Patterns, Nonlinear Dynamics and Applications (PANDA)	£803
M. Mathieu	QUB	Irish-Scottish Operator Algebra Seminar	£700
G.A. Niblo	Southampton	Geometric and Analytic Methods in Group Theory	£1,400
B. Klopsch	Royal Holloway	South England Profinite Groups Meeting	£950

**Scheme 4**

Applicant	Institution	Collaborator	Institution	Grant
B. Webb	Open	S. Barbina	Barcelona	£560
V. Moroz	Bristol	F. Brock	American University of Beirut	£600
J. Zimmer	Bath	T. Roubicek	Charles University, Prague	£600
C.J. Christopher	Plymouth	H.-C. Graf von Bothmer	Hannover	£600
T. Wagenknecht	Manchester	J. Knobloch	Ilmenau Technical University, Germany	£420
G.A. El	Loughborough	S. Zykov	Russian Academy of Sciences, Ekaterinburg	£600
A. Zsak	Nottingham	S.J. Dilworth, E. Odell, T. Schlumprecht	South Carolina/Texas/ Texas A&M	£477
P.-O. Dehaye	Oxford	C. Hughes	York	£300
P.L. Kassaei	Kings College London	E. Goren	McGill, Montreal	£600
D. Strauss	Hull	A.T-M. Lau	Alberta, Edmonton, Canada	£600
M. van den Berg	Bristol	P. Gilkey	Oregon	£600
K. Cherednichenko	Cardiff	P. Padilla	IIMAS, Mexico	£600
H. Zhao	Loughborough	C. Feng	Shanghai Jiaotong	£600
K. Khusnutdinova	Loughborough	L.A. Ostrovsky	Colorado	£600
H. Zheng	Imperial College	L. Jiang	Tongji, Shanghai	£600

Scheme 5

Applicant	Visitor	Institution	To Visit	Grant
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J.R. Norris	I. Armendariz	San Andres, Argentina	Cambridge	£860
D. Arrowsmith	F. Bhatti	Lahore, Pakistan	QMUL and Royal Holloway	£1,440
A.L. Brown			Birzeit University, Palestine	£470
D.J. Henwood			University of Zimbabwe	£987
A. Roux			AIMS, Cape Town and University of Stellenbosch	£1,100

ANNUAL LMS SUBSCRIPTION 2007/08

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The Society is appreciative of those members who have paid their 2007/08 subscriptions. May we remind those who have not yet paid, that subscriptions were due on 1 November 2007. Prompt payment ensures continuity of publications and avoids the need for time-consuming reminders. The Society reserves the right to discontinue the supply of periodicals and the *Newsletter* to members whose subscription remains unpaid by **31 January 2008**.

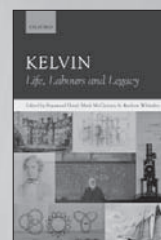
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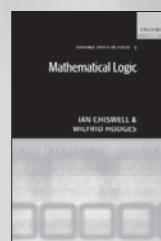
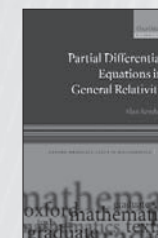
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The London  
Mathematical  
Society



## Cecil King Travel Scholarship

The London Mathematical Society annually awards a £5000 Cecil King Travel Scholarship in Mathematics, to a young mathematician of outstanding promise. The Scholarship is awarded to support a period of study or research abroad, typically for a period of three months.

The award is competitive and based on a written proposal describing the intended programme of study or research abroad and the benefits to be gained from such a visit. A shortlist of applicants will be selected for interview.

Applicants should normally be nationals of the UK or Republic of Ireland, either registered for or having recently completed a doctoral degree at a UK University.

Applications should be made using the form available on the Society's website ([www.lms.ac.uk/activities/cecil\\_king/index.html](http://www.lms.ac.uk/activities/cecil_king/index.html)) or from Isabelle Robinson at the Society ([isabelle.robinson@lms.ac.uk](mailto:isabelle.robinson@lms.ac.uk)). The closing date for applications is **Friday 22 February 2008**. It is expected that interviews will take place in London in late April or early May.

*The Cecil King Travel Scholarship was established in 2001 by the Cecil King Memorial Fund. The award is made by the Council of the London Mathematical Society on the recommendation of the Cecil King Prize Committee, nominated by the Society's Education Committee.*

## DAVID CRIGHTON FELLOWSHIP

The David Crighton Fund was set up by the University of Cambridge in memory of the late Professor David Crighton, FRS, to provide support for young scholars in his research field, i.e. the subfield of applied mathematics concerned with fluid mechanics, acoustics, waves and vibration. The managers of the fund are accordingly offering up to four David Crighton Fellowships for research students and postdoctoral fellows in these areas to undertake up to three months' study and research either in Cambridge, if they are currently based outside Cambridge, or elsewhere, if they are currently based in Cambridge. The award is to be used to cover actual travel and subsistence expenses; the maximum amount of any one award is £2,500. The period of study should begin in the calendar year 2008.

Applications are invited from suitable candidates, who should normally be in the second half of their PhD research or have no more than three years' post-doctoral experience. It is expected that candidates will normally come from a Department of (Applied)

Mathematics, Engineering, or Physics. The application should include a brief *curriculum vitae*; a one-page description of the candidate's research topic, a statement of the benefit that can be expected from the proposed period of study, a letter from the proposed senior host stating that he or she agrees to accept the candidate to study with them between specified dates, countersigned by the host's head of department, and a detailed statement of expected travel and subsistence expenses. Applications must also include the names and addresses, telephone/fax numbers and email addresses of two academic referees. Applications should be sent to by **14 January 2008** to Head of Department of Applied Mathematics and Theoretical Physics, Centre for Mathematical Sciences, Wilberforce Road, Cambridge CB3 0WA.

Applicants should ask their referees to send letters of recommendation, to include details of their assessment of the applicant's suitability for a David Crighton Fellowship including the benefits they are likely to gain from their visit.

## FIFTH EUROPEAN CONGRESS OF MATHEMATICS

Council has set aside a sum of money to be used for making grants to mathematicians based in the UK who wish to attend the Fifth European Congress of Mathematics, Amsterdam, 14–18 July 2008 ([www.5ecm.nl](http://www.5ecm.nl)). The Society would particularly like to support those mathematicians at an early stage in their career.

People who are eligible are expected to make an application to the Royal Society: Royal Society grants are made to applicants presenting their own paper or poster or chairing a session. The deadline for applications to the Royal Society is

**5 March 2007**. Information and application forms can be found on the website [www.royalsociety.org](http://www.royalsociety.org).

People who are not eligible for a Royal Society grant may apply to the London Mathematical Society for a grant, on forms obtainable from the LMS ([susan.oakes@lms.ac.uk](mailto:susan.oakes@lms.ac.uk)). Applications should be sent to Susan Oakes, The Administrator, London Mathematical Society, to arrive before **Wednesday 12 March 2008**. They will be considered by a Council Committee and the outcome will be made known to the applicant before the end of March.



## ROYAL COMMISSION FOR THE EXHIBITION OF 1851

### Research Fellowships

The scheme of 1851 Research Fellowships is intended to give a few PhD level scientists or engineers of exceptional promise the opportunity for conducting research for a further period of two years. Approximately eight awards are made each year.

The Fellowships are open to candidates in any of the physical or biological sciences, in mathematics, in applied science, or in any branch of engineering. Applicants for these awards can also apply to be considered by the Lloyd's Tercentenary Foundation which offers a small number of similar fellowships. Candidates in science subjects should normally have recently obtained their PhD degree, or be in the final stages of their PhD studies. Candidates offering engineering do not have to be in possession of a PhD, but must be of at least PhD standard.

Applications from qualified engineering researchers are particularly encouraged. For the second year the Royal Commission will be offering an additional fellowship to further strengthen its support for engineering research. This additional fellowship is designated the Brunel Fellowship and was introduced to mark the 200th anniversary of the great Victorian engineer's birth.

The Fellowship stipend payable in 2008 is £28,500 for the first year, and £30,000 for the second year. In addition a London (Overseas) Weighting of £2,500 per annum is payable in appropriate cases. Stipends are reviewed annually.

A candidate must be a citizen of the United Kingdom or the Commonwealth, or of the Republics of Ireland or Pakistan. He or she should either have spent at least two out of the past three years at a UK Institution, or be intending to hold the Fellowship at a UK Institution, or both. Applications are made

online via the website (link below) and must include two references, plus a certificate from the institution at which the Fellowship is to be held. Applications must be received by **5 pm Thursday 21 February 2008**. Appointments to the Fellowship will be made during June 2008. Fellowships commence at the beginning of October in the year of award. The full regulations and application form can be found at [www.royalcommission1851.org/fellowships](http://www.royalcommission1851.org/fellowships).

## ISAAC NEWTON INSTITUTE

### Call for proposals

The Isaac Newton Institute for Mathematical Sciences is a national research institute in Cambridge. It aims to bring together mathematical scientists from UK universities and leading experts from overseas for concentrated research on specialised topics in all branches of the mathematical sciences from pure mathematics, applied mathematics and statistics, to theoretical aspects of any discipline.

At any time there are two visitor programmes in progress, each with about twenty scientists in residence. Included within these programmes are periods of particularly intense activity including instructional courses and workshops. Seventy-two programmes have now been completed, the most recent being *Analysis on Graphs and its Applications*, *Highly Oscillatory Problems* and a four-week programme *Bayesian Nonparametric Regression*. The programmes currently taking place are *Strong Fields*, *Integrability and Strings* and *Phylogenetics*.

The Institute invites proposals for research programmes in any branch of mathematics or the mathematical sciences. The Scientific Steering Committee usually meets twice each year to consider proposals for programmes (of 4-week, 4-month or 6-month duration) to run two or three years later. Proposals to be considered at these meetings should be submitted by **31 January** or **31 July** respectively. Further information is available at [www.newton.cam.ac.uk/callprop.html](http://www.newton.cam.ac.uk/callprop.html).

## THE LEGACY OF JOHN CRANK

A two-day conference will be held at Brunel University, Uxbridge, from 10 to 11 July, to consider the influence that the work of John Crank has had on the numerical solution of time dependent PDEs, on the modelling of diffusive processes and on free boundary problems. The focus of the meeting will be on the state of the art of the subject and on future developments and applications, including industrial applications.

John Crank (1915–2006) originally worked in industry on the modelling and numerical solution of diffusion in polymers. In 1943, working with Phyllis Nicolson on finite difference methods for the time dependent heat equation, he proposed the Crank–Nicolson method which has since been incorporated universally for the solving of time dependent problems. John Crank, who was the first professor of mathematics at Brunel University, died in October 2006 and the purpose of this meeting is to consider the legacy that he left to the numerical solution of partial differential equations and in particular to consider future developments and applications in the field. The main speakers are:

- Karl-Heinz Hoffman (TU München)
- Mary Wheeler (University of Texas, Austin)
- Omar Lakkis (University of Sussex)
- Gerd Dziuk (University of Freiburg)
- John Barrett (Imperial College London)
- Jürgen Sprekels (Weierstrass Institute, Berlin)
- Mario Primicerio (University of Florence)
- Henri Berestycki (EHESS, France)
- Pierluigi Colli (University of Pavia)
- David Edwards (University of Delaware)
- Andrew Lacey (Heriot-Watt University)
- John King (University of Nottingham)
- William Shaw (King's College London)

The conference is funded in part by a conference grant from the London Mathematical Society. This grant contains a component

for supporting research students studying at universities in the UK and the Republic of Ireland, who do not have other means of support (e.g. from their Doctoral Training Awards).

Details of the conference and forms of application can be found at [people.brunel.ac.uk/~icsrsss/bicom/johncrank2008](http://people.brunel.ac.uk/~icsrsss/bicom/johncrank2008) or by contacting Carolyn Sellers ([carolyn.sellers@brunel.ac.uk](mailto:carolyn.sellers@brunel.ac.uk)). The organisers are J. Ockendon, C.M. Elliott and J.R. Whiteman.

## THE MOUNTAIN PASS THEOREM AND ITS APPLICATIONS

The year 2008 is the 35th anniversary of the seminal paper of Ambrosetti and Rabinowitz which introduced the Mountain Pass Theorem (MPT), and it is the 15th anniversary of the numerical implementation of MPT by Choi and McKenna. The MPT is now a major tool in nonlinear analysis and the theory of nonlinear PDEs. The recent textbook by Jabri lists over 1000 references on the subject, and [scholar.google.com](http://scholar.google.com) lists over 800 citations of the original 1973 paper. However, there has not been much activity in this area in the UK. This one-day workshop is both a celebration and an introduction to the MPT. Both fundamentals and applications will be discussed. PhD students are particularly encouraged to attend. Principal speakers are Jiri Horak (Cologne) and John Toland (Bath).

The workshop will be held at the University of Surrey on Friday 25 January 2008. Information about the workshop can be obtained by contacting the organisers: David Lloyd ([D.Lloyd@surrey.ac.uk](mailto:D.Lloyd@surrey.ac.uk)) and Tom Bridges ([T.Bridges@surrey.ac.uk](mailto:T.Bridges@surrey.ac.uk)). Registration and programme information will also be posted on the website [www.maths.surrey.ac.uk](http://www.maths.surrey.ac.uk).

## JOINT EWM–EMS WORKSHOP

This half-day workshop will take place on the afternoon of Sunday 13 July, immediately before the European Congress of Mathematics (ECM) in Amsterdam. Organized under the auspices of the European Mathematical Society (EMS) and the European Women in Mathematics (EWM), it aims at introducing the audience to the topics of the two main women speakers at the ECM, Christine Bernardi and Matilde Marcolli. Its programme will be organized around three or four introductory talks on their research areas, namely spectral and variational problems in applied mathematics and applications of

noncommutative geometry (for example to quantum field theory and number theory), and will end with a social gathering and informal discussions. The speakers at the workshop will include Christine Bernardi and Alina Vdovina.

All are welcome. For more details see the EWM website ([www.math.helsinki.fi/EWM](http://www.math.helsinki.fi/EWM)) or contact one of the organizers, Colette Guillopé (Femmes et Mathématiques), Frances Kirwan (Convenor of EWM), Sylvie Paycha (Coordinator of the EMS Committee for Women in Mathematics), Janne Kool and Charlene Kalle (Utrecht).

## LMS NORTHERN REGIONAL MEETING AND WORKSHOP 2007

A Northern Regional Meeting of the LMS took place on Wednesday 24 October at the University of Sheffield. It was the opening event of a subsequent three-day Workshop on *Lie Algebroids and Lie Groupoids in Differential Geometry*, which took place at the Rutland Arms Hotel in Bakewell. The Wednesday meeting was attended by about 50 LMS members and visitors. It began with Alice Rogers welcoming those present and inviting any new members of the LMS to sign their names in the Members' Book; there were no takers on this occasion.

Ieke Moerdijk then introduced the first speaker, Larry Breen of the University of Paris XIII. This was the 2007 Fröhlich lecture, and it was entitled *Differential forms: an intrinsic perspective*. In this talk Professor Breen gave a masterful outline of the combinatorial approach to differential calculus, whereby  $n$ -forms on a smooth manifold are thought of intrinsically as functions on the 'infinitesimal  $n$ -simplex'. The notions of connections and curvature and Lie-algebra valued differential forms are especially convenient in this framework, and the proofs of many standard identities such as the Maurer–Cartan equation and the Bianchi identity become quite transparent. This combinatorial language becomes especially useful in the context of differential geometry on higher order geometric structures such as gerbes, which was the subject of Professor Breen's subsequent talk at the Workshop.

The meeting then adjourned for tea and coffee. After the break, Kirill Mackenzie introduced the second speaker, Alberto Cattaneo of the University of Zürich, who delivered an insightful talk entitled *The*

*Poisson sigma model*. Professor Cattaneo started off by reminding everyone of the basic ideas of symplectic and Poisson geometry, reduction and quantization. A symplectic groupoid is one whose space of arrows carries a compatible symplectic structure; the space of objects turns out to form a Poisson manifold. The basic problem is the inverse procedure, of 'integrating' a Poisson manifold into a symplectic groupoid, and it is a natural extension of the corresponding situation in the world of Lie groups and Lie algebras. The Poisson sigma model is a field theory which originated in physics, and Professor Cattaneo explained how it can be used to solve the integration problem. Along the way he pointed out many generalizations and exciting further avenues for these ideas.

Then it was off on the bus to Bakewell, where the 40 or so attendants and other LMS members were treated to a formal dinner, before the Workshop began in earnest on Thursday morning. The list of speakers included Iakovos Androulidakis, Ulrich Bunke, Marius Crainic, Andre Henriques, Yvette Kosmann-Schwarzbach, David Martinez, Urs Schreiber, Nguyen Tien Zung and Ted Voronov. Larry Breen and Alberto Cattaneo also delivered additional lectures, the former on the *Differential geometry of gerbes and the non-abelian Čech–de Rham complex* and the latter on the *Reduction of Courant algebroids and generalized complex structures from the viewpoint of graded geometry*.

The Workshop was a great success; there was an excitement in the air as it seemed a new language was emerging, which everyone was approaching from slightly different vantage points. This ensured a healthy social interaction, a pleasant bonus of the live-in hotel environment and the village location.

Bruce Bartlett  
Sheffield University

## RECORDS OF PROCEEDINGS AT MEETINGS

### REGIONAL ORDINARY MEETING

held on Wednesday 24 October 2007 at the University of Sheffield. At least 55 members and visitors were present for all or part of the meeting.

The meeting began at 2.30 pm, with the Vice-President, Professor F.A. ROGERS, in the Chair. Ten people were elected to Ordinary Membership: A.N.H. Alkenani, P-A. Dehaye, S.P. Humble, A.B. Konovalov, A. Madzvamuse, M.J. Reiss, C. Stroppel, L.H. Walling, S.A. White, A. Zsak; four were elected to Associate Membership: T.L. Chan, O. Ghayour, D.A. Loeffler, J.P. Mehers; and one elected a Member under a Reciprocity Agreement: A.O. Popoola (Nigerian Mathematical Society).

The Records of the Proceedings of the Society Meetings held on 20 April and 22 June were signed as a correct record. The Records of 30 May were signed after the initials of Professor Evans were amended to W.D.

Professor I. MOERDIJK introduced a lecture given by Professor L. Breen, the Fröhlich Lecture, on *Differential forms: an intrinsic perspective*.

After tea, Dr K.C.H. MACKENZIE introduced a lecture given by Professor A. Cattaneo on *The Poisson sigma model*.

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

A dinner was then held at the Rutland Arms Hotel, Bakewell.

## WOMEN IN MATHEMATICS DAY 2008

The next Women in Mathematics Day will be held on **Friday 25 April** at De Morgan House. Sessions will include talks by practising women mathematicians in a variety of appointments and at different career stages.

The organisers would be very grateful if all 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 Jennifer Scott (j.a.scott@rl.ac.uk) by **22 February**.

### Programme

10.30-11.00	Registration and coffee
11.00-13.00	Morning Session
11.00-11.40	Hilary Ockendon (Oxford) <i>Spinning and weaving through Industrial Mathematics</i>
11.40-12.20	Alicia Kim (Bath) <i>To optimise or not to optimise: An engineer's perspective</i>
12.20-13.00	Gianne Derks (Surrey) <i>Stability of localised waves and fronts</i>
13.00-14.20	Lunch and Poster Session (starting 13.30)
14.20-16.00	Afternoon Session Postgraduate/Postdoc speakers
16.00-16.30	Tea and end of Poster Session

Followed by a meal for those able to stay.

**New this year: 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 2008.**

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, Administrative Officer (email: [isabelle.robinson@lms.ac.uk](mailto:isabelle.robinson@lms.ac.uk)).

The day is free for students and £5 for all others – payable on the day.

## THE MATHS OF COMPLEX SYSTEMS – WHERE ARE WE HEADING?

Dealing with complexity is one of the key challenges facing mathematics and mathematicians in the 21st century. Complex systems arise in problems with many different components and scales and are characterised by emergent properties that depend not so much on the behaviour of the individual components but on the way that they interact with each other. At this meeting there will be the opportunity to hear the perspectives on complexity of some young researchers working at the interface of mathematics, physics, engineering and biology and to consider what the issues are in future research into complexity. The meeting will take place on **Wednesday 6 February** in room 1W 3.6 at the University of Bath, starting at 1.30 pm preceded by a buffet lunch at 12.30 pm. Speakers include:

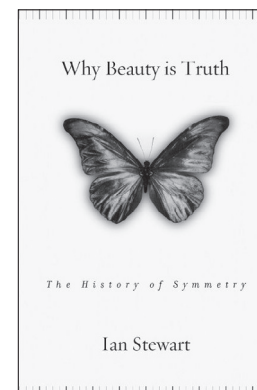
- Natalia Babych *Problems with high contrasts: modelling and analysis*
- Melina Freitag *The mathematics of data-assimilation*
- Jan Van lent *Robust domain decomposition methods*
- Nick McCullen *Emergence phenomena in complex composites*
- Nathan Smith *Aspects of ionospheric modelling*
- Zhivko Stoyanov *Clustering and ordering*

The meeting is organised by the Bath Institute for Complex Systems supported by the EPSRC and the Great Western Research Initiative. More details can be found at [www.bath.ac.uk/math-sci/events/bics-pdra](http://www.bath.ac.uk/math-sci/events/bics-pdra). If you would like to attend the meeting contact Ann Linfield ([masadl@maths.bath.ac.uk](mailto:masadl@maths.bath.ac.uk)) stating whether or not you would like to attend the lunch beforehand.

## REVIEWS

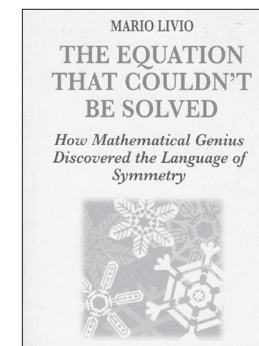
**The Equation That Couldn't Be Solved: How Mathematical Genius Discovered the Language of Symmetry** by Mario Livio, Souvenir Press, 2007, £12.00, ISBN 0285637894, 978-0-285-63789-4

**Why Beauty is Truth: The History of Symmetry** by Ian Stewart, Basic Books, 2007, 304 pp, £15.99, ISBN 978-0-465-08236-0



Symmetry is an obvious topic for a popular mathematics book: even those with no mathematical training can observe and appreciate its presence in nature, art and design, while its more abstract form (of invariance principles) now pervades most branches of mathematics and much of theoretical physics. Weyl's classic *Symmetry* set a high standard, but much has happened since its publication in 1952, and now two current masters of popular exposition have risen to the challenge.

They face a major difficulty: instead of a Leonardo Cardano or a Girolamo da Vinci merging the algebraic and geometric



insights of the Renaissance into a coherent theory of symmetry, we had to wait another three centuries for Group Theory to emerge from the elusive symmetries of polynomials. It has been famously observed that each equation halves the market for a book: Livio tackles this problem head on by making an equation (the quintic, of course) the title of his book, and even warning us how hard it is, though within his text almost all the technical mathematics is relegated to appendices. Stewart has an attractive (and symmetric) butterfly on his dust jacket, and his title quotes Keats: 'Beauty is truth, truth beauty'. He concludes, rather debatably, 'In mathematics, beauty *must* be true – because anything false is ugly.' Like Livio, he keeps his equations to a minimum, apologising gracefully for the few he does inflict on his readers.

Livio's book is clearly a labour of love: an inveterate mathematical tourist, both literally and intellectually, having visited the relevant sites and read all the available documents, he offers us 10 appendices, 16 pages of notes, and 22 pages of references, whereas Stewart offers just two pages of further reading. Livio has over 100 illustrations (diagrams, portraits, photographs, handwritten pages of notes), whereas Stewart uses about 50 diagrams. Surprisingly, both books are rather short of good pictures of real-life instances of symmetry: Livio shows us a snowflake, some William Morris and Escher patterns and a few bars of Bach and Mozart, whereas Stewart relies on text and diagrams. Both books completely ignore crystallography, though relativity, particle physics and string theory get plenty of attention.

Stewart takes a chronological route, from an imagined conversation between Babylonian students on the usefulness of square roots to a fascinating chapter on how that Victorian curiosity, the octonions,

can now explain the five exceptional simple Lie groups, and therefore might just lead physicists to their long-awaited Theory of Everything. He has a gift for finding effective analogies, for instance a tower containing sacks of formulae at different levels to illustrate what it means to solve an equation by radicals (though I wish he had helped the student reader by mentioning that mathematicians call these sacks *fields*). Livio takes a much more discursive approach, with digressions into the role of symmetry in areas such as music, visual perception and sexual reproduction.

Many of the *dramatis personae*, such as Abel, Galois and Einstein, will be familiar to most readers, but it is good to see both authors giving attention and credit to neglected figures such as Ruffini, who did much to set the scene, both psychologically and technically, for the later unsolvability proofs. I was also fascinated to read Stewart on the life of Omar Khayyam, and his friend, who later became the Old Man of the Mountains, leader of the Hashishiyun, the original hashish-fuelled assassins.

Both authors give detailed and thoughtful accounts of the life and work of Evariste Galois, each conceding that we are unlikely ever to know the full story of his tragic death, but pointing to his revolutionary friend Ernest Duchatelet (or Duchâtelet according to Stewart) as the likely opponent in the fatal duel, the cause being Galois's unreciprocated affection for Stéphanie du Motel.

By now the reader (and perhaps the editor) is wondering when I will come down off the fence, and recommend which book to buy. Livio offers more wide-ranging detail, while Stewart gives more concentrated mathematical insight, but faced with two books of this high quality the only reasonable solution is to enjoy them both. After all, Christmas is coming!

Gareth Jones  
University of Southampton

### THE FIBONACCI SEQUENCE: THE NUMBERS IN NATURE

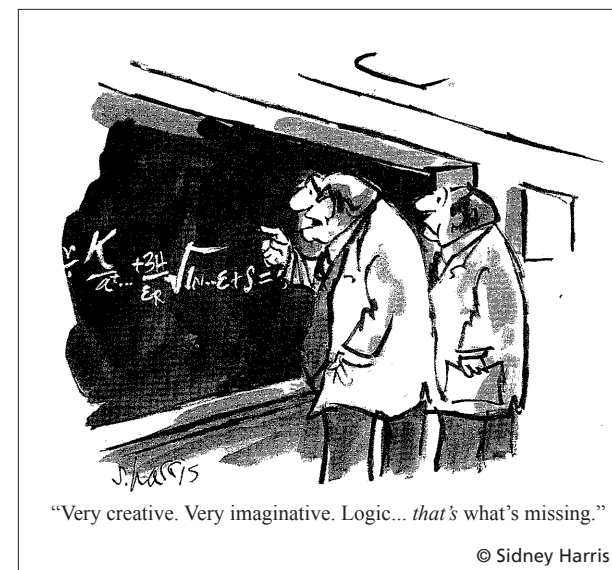
In Our Time with Melvyn Bragg, BBC Radio 4,  
29 November 2007

The latest mathematical topic to feature in this series was the Fibonacci Sequence, discussed by a panel consisting of Marcus du Sautoy, Jackie Stedall and Ron Knott. Once again we had an entertaining and informative discussion, which, while perfectly suited to the general audience for which this programme is intended, still contained enough fascinating nuggets and valuable context to keep the attention of those of us who've known about the Fibonacci numbers since our schooldays.

The programme moved from the first recorded interest in the Fibonacci numbers (in India, a millennium and a half ago, to enumerate the possible rhythms available to musicians), through their appearance in Fibonacci's *Liber Abaci* at the beginning of the thirteenth century, and the work of Lucas in the nineteenth and D'Arcy Thompson in the twentieth, to Marcus's present-day research. Alongside was discussion of the Golden Section, from ancient Greece to the music of Debussy and Bartok: one of the points which I hadn't properly appreciated was that these two intimately-related mathematical ideas were first investigated in different cultures at different times and in completely different contexts! And Ron told us how the Fibonacci numbers arise in plant growth, the mathematical basis of optimal

seed-packing which explains this having been confirmed only in the last few years. The fast-moving discussion always kept to the point, with Jackie bringing her historian's perspective ensuring that the programme commendably resisted the kind of unwarranted speculation which too often is found in popular accounts of this topic.

Whenever this programme ventures into mathematics or the history of mathematics, I am delighted that many non-mathematical friends have not only listened to it, but also wish to talk about the ideas that have been discussed; and this subject was no exception. Indeed, it was particularly effective in showing that mathematical research is ongoing and that, even in such a well-known area, discoveries are still being made and there remain 'open problems' (a phrase whose meaning had to be explained to the host: a useful reminder that mathematicians sometimes use





words in non-standard ways). The programme also brought out the continuing connections between mathematics and other arts, such as Marcus's current symmetry-related collaborations with the composer Dorothy Ker, and the use of the Fibonacci Numbers by the contemporary American band Tool. And it is particularly valuable, in today's national research climate with its increasing focus on short-term economics, that a general audience is shown (as also happens in the two books reviewed in this month's *Newsletter* by Gareth Jones) that research in pure mathematics can have unexpected and significant consequences in much wider contexts.

As with all this series, the broadcast is available for listening or download at [www.bbc.co.uk/radio4/history/inourtime/inourtime\\_archive\\_home.shtml](http://www.bbc.co.uk/radio4/history/inourtime/inourtime_archive_home.shtml) (under 'Science').

Tony Mann  
University of Greenwich

#### BEAUTIFUL YOUNG MINDS BBC 2, 14 October 2007

This programme has caused some controversy amongst mathematicians. However, we have to realise that it was a programme for the general public and not the expert mathematician, and from this point of view it was an excellent television programme. In comparison with other 'competition' programmes such as *Pop Idol* and even *Classical Star* there is really no comparison. It avoids the clichés of these programmes. It is refreshing to see a programme about mathematics and those aspiring to excellence. Sam Woolaston in the *Guardian* said that

it was his number one television documentary of the year.

The programme sets out to follow a number of young Britons in their quest to compete in the World Mathematics Olympiad. It is more about an insight into individuals with a particular talent (problem solving) and how they are driven to compete. Most of the students it followed were fascinating and we were interested in their future.

The programme is spoilt by its concentration on Asperger's Syndrome, which gives the idea that you need to be odd to be a talented mathematician. Such an attitude seems prevalent in the UK. (This bedevils school teaching: for example, some pupils are punished by being made to do harder maths!) In a country like China these attitudes are much less common and in the Olympiad all the Chinese candidates ended up with gold medals. It was interesting that one of the British candidates went to China, learned Mandarin in a short time and came back with a Chinese girl-friend whom he married: a touching part of the film.

One is left wondering whether the Olympiad has anything to do with discovering the country's up-and-coming mathematicians or just those with a particular talent in problem solving. The idea that Mathematics is creative was not explored or mentioned in the entire programme. At the end of the programme, one of the students stated that he could now have a break and do real mathematics without being so competitive. "It really is a bit silly."

David and Margaret Singerman  
Southampton

### ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES FUTURE DIRECTIONS IN HIGH-DIMENSIONAL DATA ANALYSIS: NEW METHODOLOGIES, NEW DATA TYPES AND NEW APPLICATIONS

23–27 June 2008

in association with the Newton Institute programme entitled  
*Statistical Theory and Methods for Complex, High-Dimensional Data*  
(7 January to 27 June 2008)

**Workshop Organisers:** Dr David Barber (University College London), Professor Iain Johnstone (Stanford University), Dr Richard Samworth (University of Cambridge) and Professor Michael Titterton (University of Glasgow).

**Theme of workshop:** This closing workshop of the research programme will look both backwards and forwards, although mainly the latter. There will be a retrospective component that reviews some of the ideas and advances that have been generated or initiated during the preceding six months, but the emphasis will be on presentations that look to the future, in this vital area of the analysis of large-scale data-sets. The invited speakers will include leading researchers from statistics and machine learning, and will describe theoretical/methodological advances as well as issues associated with implementation in important applied fields, such as finance, climatology, analysis of sparse signals and genomics.

**Confirmed speakers:** D. Barber (UCL); T. Cai (Pennsylvania); P. Hall (Melbourne); V. Koltchinskii (Georgia); E. Levina (Michigan); N. Meinshausen (Oxford); A. Owen (Stanford); A. Tsybakov (Paris); J. Rice (Berkeley); J. van Houwelingen (Leiden); J-L. Wang (Davis); E. Wit (Lancaster); M. Yuan (Georgia).

**Further information and application forms** are available from the web at: [www.newton.cam.ac.uk/programmes/SCH/schw03.html](http://www.newton.cam.ac.uk/programmes/SCH/schw03.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](mailto:t.andrew@newton.cam.ac.uk).

Closing date for the receipt of applications is **9 February 2008**.



## MATHOETIC MODE

Diana Pooley's review in the November *Newsletter* of *Uneasy relations* by Michael Barthelomew-Biggs discusses relations between mathematics, poetry, theatre and imagination. Naming and renaming is a subtle and inveterate habit of our conceptual art and science, in its building of structures for description, deduction, verification and calculation, and its finding, through abstraction, of powerful analogies.

Perhaps we should coin the term *mathoetic mode* for the striving we all need to do through "the difficulty of bringing new concepts out of the dark" in the words of Alexander Grothendieck.

So I would like to point out a speech in *A Midsummer Night's Dream*, Act V, Scene 1, in which it seems that Shakespeare speaks through his character Theseus, but which also suggests, in its last three lines, the role of the mathoet:

*'The poet's eye, in a fine frenzy rolling,  
Doth glance from heaven to earth, and  
earth to heaven,  
And as imagination bodies forth the  
forms of things unknown  
The poet's pen turns them to shapes, and  
gives to airy nothing  
A local habitation and a name.'*

R. Brown  
University of Wales, Bangor

## 12 THEOREMS BY WOMEN MATHEMATICIANS

The site [www.theoremoftheday.org](http://www.theoremoftheday.org) features one-page descriptions of beautiful and iconic theorems, and the number of featured theorems proved or jointly proved by women has recently exceeded twelve. A calendar has been compiled called *12 Theorems by Women Mathematicians*. The individual theorems can be found at the website, as can details on how to purchase copies of the calendar.

## 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](http://www.lms.ac.uk/newsletter/calendar.html)).

### JANUARY 2008

**3-9** Flags, Quivers and Invariant Theory in Lie Representation Theory Workshop, Oxford (365)

**7-11** Contemporary Frontiers in High-Dimensional Statistical Data Analysis, INI Workshop, Cambridge (359)

**7-11** Algebraic and Symplectic Geometry UK-Japan Winter School, Warwick (362)

**16** Squaring the Circle and Other Impossibilities, Gresham College Lectures, London (362)

**18** Yorkshire and Durham Geometry Day, Durham (365)

**18** Edinburgh Mathematical Society Meeting, Edinburgh (363)

**21-25** Zeros of Graph Polynomials, INI Workshop, Cambridge (361)

**25** Mountain Pass Theorem and its Applications Workshop, Surrey (366)

**30** Combinatorics Meeting, Open University (365)

### FEBRUARY 2008

**6** The Maths of Complex Systems, Bath (366)

**6** A Millennium of Mathematical Puzzles, Gresham College Lectures, London (362)

**8** LMS Mary Cartwright Lecture, Oxford (366)

**15** Edinburgh Mathematical Society Anniversary Meeting, Edinburgh (363)

**27** From Hilbert's Problems to the Future, Gresham College Lectures, London (362)

### MARCH 2008

**9-12** Mathematics and its Applications in Information Technology, Lahore, Pakistan (362)

**14** Edinburgh Mathematical Society Meeting, Dundee (363)

**25-28** BMC, York

**25-28** Markov-Chain Monte Carlo Methods INI Workshop, Cambridge (363)

**31** LMS Northern Regional Meeting, Manchester

**31-4 Apr** BAMC, Manchester

**31-4 Apr** High Dimensional Statistics in Biology INI Workshop, Cambridge (363)

**31-4 Apr** New Scaling Limits and Other Recent Developments in Probability Conference, Warwick University (364)

### APRIL 2008

**7-11** LMS Invited Lectures, A. Okounkov, Imperial College London (366)

**7-11** Combinatorial Identities and Their Applications in Statistical Mechanics, INI Workshop, Cambridge (364)

**25** Women in Mathematics Day, London (366)

**25** Edinburgh Mathematical Society Meeting, Aberdeen (363)

### MAY 2008

**1** Cancer can give you Maths!, LMS-Gresham College Lecture, London (364)

**4** 400 Years of Geometry, Gresham College Lecture, London (362)

**23** Edinburgh Mathematical Society Meeting, St Andrews (363)

### JUNE 2008

**9** LMS Midlands Regional Meeting, Birmingham

**23-27** Future Directions in High-Dimensional Data Analysis, INI Workshop, Cambridge (366)

**30 - 4 Jul** European Consortium for Mathematics in Industry, University College London (364)

### JULY 2008

**4** LMS Meeting, London

**10-11** Legacy of John Crank Conference, Brunel University (366)

**6-13** ICME 11, Monterrey, Mexico (362)

**13** EWM/EMS Workshop, Amsterdam, The Netherlands (366)

**14-18** Fifth European Congress of Mathematics, Amsterdam, The Netherlands (362)

**14-19 Dec** Mathematics and Physics of Anderson Localization: 50 Years After, INI, Cambridge (352)

**14-25** Anderson Localization Transition Introductory Training Course, INI, Cambridge (364)

**15-19** Bachelier Finance Society Fifth World Congress, London (365)

### SEPTEMBER 2008

**14-18** EUROMECH Fluid Mechanics Conference, Manchester (362)

**14-19** Phenomena in High Dimensions Workshop, Lancaster University (364)

**15** LMS SW & South Wales Regional Meeting, Swansea

### NOVEMBER 2008

**21** LMS AGM, London

### APRIL 2009

**6-9** BMC, Galway

### AUGUST 2010

**19-27** International Congress of Mathematicians 2010, Hyderabad, India (365)

## E. P. CULVERWELL

LMS member 1891–99



W. Lawrence, Dublin

Edward Parnall Culverwell, MA  
Fellow and Tutor of Trinity College, Dublin