

THE LONDON MATHEMATICAL SOCIETY



NEWSLETTER

No. 369 April 2008

Society Meetings and Events

2008

Friday 25 April

Women in
Mathematics Day
London [page 5]

Monday 9 June

Midlands Regional
Meeting, Birmingham
[page 3]

Friday 4 July

Hardy Lecture [page 2]
and Meeting, London

Thursday 17 July

LMS Meeting
5ECM, Amsterdam

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

PHILIPPA FAWCETT COLLECTION

Reception

Readers are invited to attend a Reception to mark the opening of the Philippa Fawcett Collection at De Morgan House at 5 pm on 25 April 2008.

The Philippa Fawcett Collection comprises a comprehensive library of books and materials written by and about women who studied or worked in mathematical subjects in the nineteenth and early twentieth centuries, a period when it was especially difficult for women to succeed in universities and particularly in subjects such as mathematics. Some of the earlier material dates from before 1868, when no women were able to attend a university, or to obtain any formal mathematical training.

The Collection has been donated to the London Mathematical Society by A.E.L. Davis and is a testament to the achievements of women who have had to overcome tremendous difficulties in order to study the subject. It is hoped that the collection will be a source of inspiration to women aiming to achieve at the highest levels in what is still a male-dominated academic subject, and will be a useful resource to scholars of the history of women in mathematics.

The Reception will take place at the end of the annual *Women in Mathematics Day*, which includes talks by established women mathematicians and postgraduate students

and poster sessions. The Reception will feature other aspects of the Women in Mathematics Committee's work and will include an opportunity for informal networking and browsing the collection.

If you are interested in attending the reception for the launch of the Collection please email Martin Smith (martin.smith@lms.ac.uk) to reserve a place.

For further details of the Women in Mathematics Day please see page 5; to register for the day please contact Isabelle Robinson (isabelle.robinson@lms.ac.uk).

ANNUAL ELECTIONS TO LMS COUNCIL

The normal way in which nominations to Council are made is via the Nominating Committee, but there is also provision for all members of the Society to make nominations directly. Anyone who wishes to propose someone for a position as an Officer of the Society or as a member of Council is invited to inform P.J. Giblin, who is the current chair of the Nominating Committee (pjgiblin@liv.ac.uk), or one of the other members of the Committee (M.R. Bridson, A.G. Chetwynd, C.A. Hobbs, M.A.H. MacCallum, M. Reid, C.M. Series, B.J. Totaro) by **31 May 2008**.

Any direct nominations should

be sent to the Executive Secretary (peter.cooper@lms.ac.uk) to arrive before noon on **1 September 2008**. Such nominations must bear the signatures of the Nominator and three Seconders and of the Nominee.

MATHEMATICS POLICY ROUND-UP

Recruitment figures released by the Graduate Teacher Training Registry for teacher training were disappointing reading for the mathematics world. Applications for secondary-school PGCE courses in mathematics starting in September 2008 fell from 1,056 last year to just 896 this year, a fall of over 15%. This comprised a drop of 20% in applications from men but only a 10% drop in applications from women. Across all subjects, applications were down 9%. Worst hit was physics, with a 30% drop from 185 to 129, although some subjects saw an increase, such as drama (almost 8%) and social studies (over 10%).

Caroline Davis
Mathematics Policy and Promotion Officer

LMS HARDY LECTURES 2008

Professor Shmuel Weinberger
(University of Chicago and Hebrew University)

Professor Weinberger will give the following lectures:

- Edinburgh, June 23 *Playing the Novikov game*; contact Tom Lenagan (T.Lenagan@ed.ac.uk)
- Liverpool, June 25 *Applications of quantitative topology*; contact Peter Giblin (pjgiblin@liverpool.ac.uk)
- Durham, June 30 *Topological methods for the analysis of large data sets*; contact Michael Farber (Michael.Farber@durham.ac.uk)
- London, July 4 *Complexity, entropy, and variational problems*; contact Susan Oakes (susan.oakes@lms.ac.uk)

LONDON MATHEMATICAL SOCIETY

MIDLANDS REGIONAL MEETING

School of Mathematics, University of Birmingham

Monday 9 June 2008

2.00 Opening of the meeting

F. Ricci (Pisa)

Commutative Fourier analysis on nilpotent Lie groups

3.45 E.B. Davies (King's College London)

Spectral properties of matrices associated with some directed graphs

4.00 Tea

4.45 L. Vega (Bilbao)

Convexity and uniqueness for some evolution equations

Dinner

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

There will be a dinner in the evening on the University campus. Email Neal Bez (n.bez@bham.ac.uk) if you wish to attend the dinner.

The meeting will be followed by a more specialised workshop entitled *Harmonic Analysis and Partial Differential Equations* from 10 to 12 June. This will be an open meeting and there is no registration fee (although guests are asked to register their intention to attend using the online registration system on the website <http://maths.bham.ac.uk/lmsmeeting>). Postgraduate students are particularly encouraged to attend.

There are funds available to contribute to the expenses of members of the LMS or research students to attend the meeting and workshop. Requests for support should be made to Neal Bez.

For further details visit the website <http://maths.bham.ac.uk/lmsmeeting>.

LMS Newsletter

General Editor: Dr D.R.J. Chillingworth (D.R.J.Chillingworth@maths.soton.ac.uk)

Reports Editor: Dr S.A. Huggett (s.huggett@plymouth.ac.uk)

Reviews Editor: Mr A.J.S. Mann (a.mann@gre.ac.uk)

Administrative Editor: Miss S.M. Oakes (susan.oakes@lms.ac.uk)

Editorial office address: London Mathematical Society, De Morgan House, 57–58 Russell Square, London WC1B 4HS (t: 020 7637 3686; f: 020 7323 3655; e: susan.oakes@lms.ac.uk, w: www.lms.ac.uk)

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, or the closest preceding working day.

News items and notices in the *Newsletter* are free to be used elsewhere unless otherwise stated, although attribution is requested when reproducing whole articles. Contributions to the *Newsletter* are made under a non-exclusive licence; please contact the author for the rights to reproduce. The LMS cannot accept responsibility for the accuracy of information in the *Newsletter*. Views expressed do not necessarily represent the views or policy of the London Mathematical Society.

Charity registration number: 252660.

THE CMS DIARY

Spring 2008

The Council for the Mathematical Sciences met in De Morgan House on 20 February, meeting for the first time as an enhanced CMS with five Members (the Institute of Mathematics and its Applications, the London Mathematical Society, the Royal Statistical Society, the Edinburgh Mathematical Society and the Operational Research Society).

As part of an annual planning exercise, the meeting reflected on achievements during 2007 and gave thought to its priorities for 2008. Regular readers will recall that the CMS met David Eastwood (Chief Executive, HEFCE) in June 2007 to discuss Nigel Steele's report on provision of mathematics courses on a regional level. This looks set to become an annual liaison between CMS and HEFCE, and a second meeting has been scheduled for June this year. The meeting gave thought to the agenda for this occasion and will be developing suggestions for topics to discuss.

Alongside the expanding regular business of engaging with the Engineering and Physical Sciences Research Council (EPSRC) and the Higher Education Funding Council for England (HEFCE), it is hoped that the CMS will be able to begin its planned engagement with the Scottish and Welsh Funding Councils (SFC and HEFCW).

With the success of Nigel Steele's report in mind, it was suggested that the 2008 Business Plan might include another proactive project or study on an emerging issue affecting mathematical sciences. As the CMS had already given some thought to matters arising from the HEFCE *Research Excellence Framework* consultation during 2007, it was suggested that such a project might focus on *Measuring Excellence in Mathematics*, including giving thought to suitable 'measures of esteem' and other aspects; the CMS will be developing its ideas over the coming months as to what the report might encompass.

The CMS held its annual meeting with the EPSRC Chief Executive (David Delpy) and members of the Mathematical Sciences Programme team on 17 January 2008. The focus of this meeting was EPSRC's strategic priorities for 2008/09 and 2010/11; David Delpy explained that EPSRC intended to place a greater emphasis on the multidisciplinary themes of Energy, The Digital Economy, Nanoscience and Next Generation Healthcare, and 'signpost' this emphasis via an increase in calls for proposals which relate to these. Whilst the overall allocation to EPSRC had increased following the Comprehensive Spending Review, much of the extra money went towards meeting Full Economic Costs; the EPSRC Council had agreed to allocate more money for the multidisciplinary themes by shifting funding away from Programme budgets. As a result, the CMS learnt that the Mathematical Sciences programme budget would decrease to £16M in April, from £18.5M in the current (2007/08) year and more than £20M in previous years. The CMS agreed to write to David Delpy to express its concerns that there will be less responsive mode funding available to support true 'blue-skies' research, but pledging to work with EPSRC to ensure that Mathematical Sciences is well-prepared to take advantage of funding available through the cross-cutting themes.

The CMS was pleased to note that the Chair, Sir David Wallace, FRS, had been invited to join the DCSF/DIUS STEM High Level Strategy Group. This group was created as a result of the 2004 *Science and Innovation Next Steps* review. The meeting was pleased at the recognition that the CMS is a key player and will be looking at how it can make the most of this opportunity.

Policy submissions noted included responses to HEFCE's *Research Excellence Framework* consultation and an earlier consultation on the withdrawal of funding for students studying Equivalent or Lower Qualifications (ELQs) (and the subsequent Select Committee inquiry). These are now available to view on the CMS website at www.cms.ac.uk.

Martin Smith
CMS Secretariat

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.

Programme

- 10.30-11.00** Registration and coffee
- 11.00-13.00** Morning Session
 - 11.00-11.40 Hilary Ockendon (Oxford)
Spinning and weaving through Industrial Mathematics
 - 11.40-12.20 Alicia Kim (Bath)
To optimise or not to optimise: An engineer's perspective
 - 12.20-13.00 Gianne Derks (Surrey)
Stability of localised waves and fronts
- 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). The day is free for students and £5 for all others – payable on the day.

The day will be followed by a Reception to mark the opening of the Philippa Fawcett Collection of books by and about women in mathematics (see page 1).

SAMUEL KARLIN

Samuel Karlin, who was elected an Honorary Member of the London Mathematical Society in March 1991, died on 18 December 2007, aged 83.

John Kingman writes: Sam Karlin was an extraordinary mathematician, whose active research career of over sixty years has left its mark on many different fields of application. The statistics alone are impressive: a dozen books, over 400 research papers, more than 70 successful doctoral students, more than 100 co-authors. But the numbers do not tell the whole story. The hallmark of Karlin's work was his determination to crack hard problems, and his remarkable success rate in pressing forward to their solution.

Sam was born into a Jewish family in Poland, but they emigrated to the USA almost at once and settled in Chicago. He won a scholarship to the Illinois Institute of Technology, graduating BS in 1944 and moving to Princeton for his PhD, which he was awarded in 1947. From there he gained a post at CalTech, where he spent nine years before his final move to Stanford in 1956.

At that time most of his papers had been on the theory of games, which he had learned from John von Neumann in Princeton. At Stanford he soon began to work with Kenneth Arrow (later to win a Nobel Prize in Economics), and wrote with him and Herbert Scarf the influential *Studies in the Mathematical Theory of Inventory and Production*. At the same time he started a long collaboration with his student James McGregor, with whom he produced profound results in probability theory, linking birth-and-death processes with the classical theory of families of orthogonal polynomials. And this led naturally to an interest in functions satisfying certain functional inequalities, which he expounded

on in his 1968 book on *Total Positivity*.

Like all the best universities, Stanford has a campus which one can walk almost from end to end, encouraging serendipitous contact between disparate departments. Karlin had both the energy and the intellectual curiosity to take advantage of this, and his work is full of collaboration with unlikely colleagues. Of these, by far the most fruitful turned out to be the strong group of quantitative geneticists, including Walter Bodmer and Luigi Cavalli-Sforza.

One example of his research in this area must suffice to give the flavour of his work. The great R.A. Fisher had propounded what he called The Fundamental Theorem of Natural Selection, which attempted to capture the idea that selective pressures tend to increase the average fitness of a population. No one quite knew what Fisher was driving at, but a landmark was reached in 1959 when Scheuer and Mandel proved an inequality for arbitrary selection at a single chromosome locus. Many tried to extend this to multi-locus selection, but had to make severe simplifying assumptions. Karlin tackled the problem head on. He wrote down the full equations for the two-locus case, and subjected them to the most powerful analysis. The results were shocking: there is no general inequality, and no Lyapunov function for the motion. There need be no unique equilibrium, and many varieties of behaviour can be found.

Sam continued to work in mathematical genetics, often with his future wife Dorit Carmelli, and he followed avidly the rapid advances at the molecular level. He may well be best remembered for his later work on statistical techniques for matching DNA sequences. But I see him as squarely in the proud tradition of mathematical analysis, applying sophisticated techniques with imagination, scholarship and determination.

HARRY DOWSON

Henry R. Dowson, FRSE, who was elected a member of the London Mathematical Society on 21 November 1963, died on 28 January 2008.

Neil Dickson writes: Henry Richard Dowson – known to everyone as Harry – was born in 1939 and educated at the Royal Grammar School in Newcastle-upon-Tyne. There he excelled in mathematics and also received a rounded education, instilling in him, for example, a love of history and the classics of English literature. He then went to King's College, Newcastle-upon-Tyne, where he obtained first class honours in pure mathematics and embarked on a PhD in functional analysis. However, after a year, his supervisor John Ringrose moved to Cambridge. Harry moved with him and spent two years at St John's College before graduating with a Cambridge PhD. His first appointment was at University College, Swansea. After two years at the University of Illinois he moved to a lectureship at

the University of Glasgow. He was promoted to a readership and elected as a Fellow of the Royal Society of Edinburgh. He took very early retirement at age 50 but remained a member of the Glasgow Mathematics Department, active in his own personal research, encouraging and supporting other researchers, and editing the *Glasgow Mathematical Journal*.

His PhD thesis led directly onto the theme of his subsequent research, the spectral theory of operators on Banach spaces. His book *The Spectral Theory of Linear Operators* (1978) summarised the state of knowledge at that time. He continued to work in that area and also in later years on Boolean algebras of projections.

He lived very modestly. His few indulgences in life were his book, stamp and coin collections, a good malt whisky – and looking after his money. He took an active part in the social life of his local church and was particularly generous in welcoming and sharing his knowledge with newly arrived students from overseas. His many friends will miss him.

DATABASE WRITER

The London
Mathematical
Society

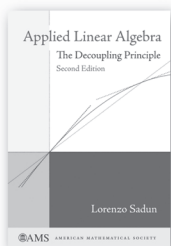


The LMS is looking for a freelance database writer to work on its publications databases. A good working knowledge of MS Access and VBA is essential; some knowledge of PHP, HTML, CSS and basic scripting under Unix would also be useful. The work is project based on an *ad hoc* basis.

Please contact Susan Hezlet at susan.hezlet@lms.ac.uk if you would like further details.

London Mathematical Society, De Morgan House
57–58 Russell Square, London WC1B 4HS
tel: +44 (0)20 7637 3686 fax: +44(0) 7323 3655 web: www.lms.ac.uk

Registered with the Charity Commission for England and Wales no. 252660



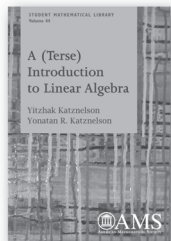
Applied Linear Algebra
The Decoupling Principle, Second Edition



Lorenzo Sadun, *University of Texas, Austin, TX*

An undergraduate text illustrating the usefulness of diagonalization in solving problems in both pure and applied mathematics

2008; 371 pages; Hardcover; ISBN: 978-0-8218-4441-0; List US\$59; AMS members US\$47; Order code MBK/50



A (Terse) Introduction to Linear Algebra



Yitzhak Katznelson, *Stanford University, CA*, and Yonatan R. Katznelson, *University of California, Santa Cruz, CA*

A self-contained presentation of elements of linear algebra that every mathematician should know

Student Mathematical Library, Volume 44; 2008; 215 pages; Softcover; ISBN: 978-0-8218-4419-9; List US\$35; AMS members US\$28; Order code STML/44

p -adic Analysis Compared with Real

Svetlana Katok, *Pennsylvania State University, University Park, PA*

A balanced approach to the topic of p -adic numbers, addressing the point of view of number theory, topology, and analysis

This book is co-published with Mathematics Advanced Study Semesters.

Student Mathematical Library, Volume 37; 2007; 152 pages; Softcover; ISBN: 978-0-8218-4220-1; List US\$29; AMS members US\$23; Order code STML/37

Twenty-Four Hours of Local Cohomology

Srikanth B. Iyengar, *University of Nebraska, Lincoln, NE*, Graham J. Leuschke, *Syracuse University, NY*, Anton Leykin, *Institute for Mathematics and Its Applications, Syracuse, NY*, Claudia Miller, *Syracuse University, NY*, Ezra Miller, *University of Minnesota, Minneapolis, MN*, Anurag K. Singh, *University of Utah, Salt Lake City, UT*, and Uli Walther, *Purdue University, West Lafayette, IN*

An unprecedented look at the connections between local cohomology and topological, geometric, combinatorial and computational themes

Graduate Studies in Mathematics, Volume 87; 2007; 282 pages; Hardcover; ISBN: 978-0-8218-4126-6; List US\$55; AMS members US\$44; Order code GSM/87

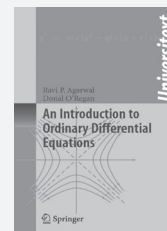
Contact the AMS: 1-401-455-4000 (worldwide); fax: 1-401-455-4046; email: cust-serv@ams.org. American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA

For many more publications of interest, visit the AMS Bookstore

www.ams.org/bookstore



New from Springer



An Introduction to Ordinary Differential Equations

R. P. Agarwal, Florida Institute of Technology, Melbourne, FL, USA; D. O'Regan, National University of Ireland, Galway, Ireland

This textbook organizes material around theorems and proofs, comprising of 42 class-tested lectures that effectively convey the subject in easily manageable sections.

2008. Approx. 335 p. 8 illus. (Universitext) Softcover ISBN 978-0-387-71275-8 ► € 39,95 | £30.50

Algebraic Geometry
An Introduction

D. Perrin, Université Paris-Sud, France

Algebraic Geometry provides an introduction to algebraic geometry that is particularly suitable for those with no previous contact with the subject. Exercises are provided for each topic discussed, and a selection of problems and exam papers are collected in an appendix.

2008. XII, 262 p. 8 illus. (Universitext) Softcover ISBN 978-1-84800-055-1 ► € 46,95 | £30.50

Stochastic Calculus for Fractional Brownian Motion and Applications

F. Biagini, University of Bologna, Italy; Y. Hu, University of Kansas, Lawrence, KS, USA; B. Øksendal, University of Oslo, Norway; T. Zhang, University of Manchester, UK

The purpose of this book is to present a comprehensive account of the different definitions of stochastic integration for fBm, and to give applications of the resulting theory. Particular emphasis is placed on studying the relations between the different approaches.

2008. XII, 332 p. (Probability and its Applications) Hardcover ISBN 978-1-85233-996-8 ► € 76,95 | £49.50

Riemannian Geometry and Geometric Analysis

J. Jost, Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany

This established reference work continues to lead its readers to some of the hottest topics of contemporary mathematical research.

5th ed. 2008. XIV, 588 p. 14 illus., 4 in color. (Universitext) Softcover ISBN 978-3-540-77340-5 ► € 44,95 | £34.50

Easy Ways to Order for the Americas ► **Write:** Springer Order Department, PO Box 2485, Secaucus, NJ 07096-2485, USA
► **Call: (toll free)** 1-800-SPRINGER ► **Fax:** 1-201-348-4505 ► **Email:** orders-ny@springer.com or **for outside the Americas**
► **Write:** Springer Distribution Center GmbH, Haberstrasse 7, 69126 Heidelberg, Germany ► **Call:** +49 (0) 6221-345-4301
► **Fax:** +49 (0) 6221-345-4229 ► **Email:** SDC-bookorder@springer.com
► Prices are subject to change without notice. All prices are net prices.

VISIT OF DR D.G. FITZGERALD

Dr Des G. FitzGerald (University of Tasmania) is visiting the UK from 3 March to 15 April. This visit is partially supported by an LMS Scheme 2 grant. For information on his itinerary contact Dr Mark V. Lawson at Heriot-Watt University (markl@ma.hw.ac.uk).

VISIT OF DR ELIZABETH ITS

Dr Elizabeth Its (Indiana University–Purdue University, Indianapolis, USA) will be visiting the UK in May. Her research interests are in the area of elastic wave propagation including the application of the Riemann–Hilbert approach. Lectures will take place on:

- Tuesday 6 May, London South Bank University *Riemann–Hilbert approach for Rayleigh wave scattering in a quarter-space*
- Wednesday 7 May, Imperial College *Lax pair and Riemann–Hilbert approach in elastodynamics*
- Monday 26 May, Brunel University *Riemann–Hilbert approach for scattering problems in geophysics*

For further information contact Professor Julius Kaplunov at Brunel University (Julius.Kaplunov@brunel.ac.uk). Dr Its's visit is partially supported by an LMS Scheme 2 grant.

VISIT OF PROFESSOR L.W. MARCOUX

Professor Laurent W. Marcoux (University of Waterloo, Canada) will be visiting the UK and Ireland from 1 to 14 May. Professor Marcoux is an expert in the areas of operator theory and operator algebras and will be delivering lectures at Belfast, Lancaster and Cork. This visit is supported by an LMS Scheme 2 grant. For further details of Professor Marcoux's schedule contact Dr Martin Mathieu (m.m@qub.ac.uk).

VISIT OF PROFESSOR A.S. MERKURIEV

Professor Alexander S. Merkuriev (UCLA) will be visiting the School of Mathematical Sciences, Nottingham University, from 11 to 18 May 2008. His fundamental contributions to several parts of algebra – algebraic K -theory, quadratic forms and algebraic groups – are very well known. One of his lectures will take place on 16 May. His visit is supported by an EPSRC grant. For more detailed information contact I. Fesenko (ibf@maths.nott.ac.uk) or visit the web site www.maths.nott.ac.uk/personal/ibf/nt_sem.html.

VISIT OF PROFESSOR B. SURY

Professor B. Sury (Indian Statistical Institute, Bangalore) will be visiting the mathematics departments at Glasgow, Edinburgh and Manchester from 2 to 30 June. He is an international authority on algebraic groups. During his stay Professor Sury will be based in the University of Glasgow. He will visit the University of Edinburgh from 17 to 19 June and the University of Manchester from 24 to 26 June. He will give lectures at all three venues. Contact Alec Mason (awm@maths.gla.ac.uk) nearer the time for the dates of the lectures. The visit is supported by an LMS Scheme 2 grant.

NORDSTAT

The 22nd Nordic Conference on Mathematical Statistics (NORDSTAT) will take place in Vilnius from 16 to 19 June 2008. NORDSTAT is a biennial meeting for statisticians and probabilists from the countries in Northern Europe. For further information about the meeting, visit the website: www.nordstat2008.com.



LIMS invite you to an evening on HIGHER DIMENSIONAL DATA

Wednesday 23 April 2008

Lectures will be held at De Morgan House,
57–58 Russell Square, London, WC1B 4HS

5:30 pm – 6:15 pm *Feature selection and data fusing with spikey curves*
Professor Phil Brown (University of Kent)

Many modern instruments present continuous functions as data, sampled at regular adjacent points. There is a natural belief that such continuity can be exploited in statistical analysis, but this has proved surprisingly elusive. Most more pragmatic approaches to analysing such data rely on data reduction techniques that all but destroy such continuity. For example in mass spectroscopy proteomics it is usual to reduce the intensity curves to a series of peaks, which might correspond to particular important peptides. We review the traditional approach and explore an approach which retains the original curves as data and uses wavelets to exploit and combine different data streams, for example from different laser settings. By doing this we are able to reveal important peaks that would otherwise be masked by noise. I will illustrate with data from mass spectroscopy cancer studies.

6:15 pm – 6:45 pm Break for refreshments

6:45 pm – 7:30 pm *Chemometrics and calibration in near infrared spectroscopy*
Professor Tom Fearn (Statistical Science, UCL)

The standard calibration problem in quantitative near infrared spectroscopy involves deriving a rule for predicting some chemical or physical property of a sample, e.g. the protein or moisture content of a sample of wheat, from its near infrared spectrum. For this a training set of, say, $n = 100$ samples with known properties is used. Since the spectrum may be measured at $p = 1000$ wavelengths this is an example of a problem with $p \gg n$, many more predictors than training cases. Such problems have become fashionable of late, because of technology such as the gene chip, but they have been studied in the context of spectroscopy for at least 25 years. I shall describe some of the solutions adopted, both old and new.

Frank Smith
and the LIMS committee

Entrance is free and event open to all.
RSVP a.ariel@ucl.ac.uk



The London
Mathematical
Society



London Mathematical Society/Gresham College
Joint Annual Lecture

Thursday 1 May 2008

1pm and 6pm at Barnard's Inn Hall, Holborn

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

Cancer can give you Maths!

Professor Philip Maini

University of Oxford

Admission free

No reservations required

Places allocated on a 'first come, first served' basis

Enquiries to Gresham College, Barnard's Inn Hall, Holborn, London EC1N 2HH
Telephone 020 7831 0575 enquiries@gresham.ac.uk

SPITALFIELDS DAYS

Grants

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

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

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

Anyone involved in running a symposium who would be interested in organizing a Spitalfields Day is invited to write to Dr S.A. Huggett, Programme Secretary at the Society (grants@lms.ac.uk). The format need not be precisely as described above, but should be in a similar spirit.

PANDA

A one-day meeting on *Patterns and nonlinear dynamics in biology* will be held in DAMTP, University of Cambridge, on Friday 6 June 2008. Pedagogical talks will be given by Dr Ruth Baker (Oxford) and Professor Ray Goldstein (Cambridge). Limited financial support, provided by an LMS Scheme 3 grant, is available to cover travel expenses. Research students and postdocs in particular are encouraged to contribute talks and should contact Dr

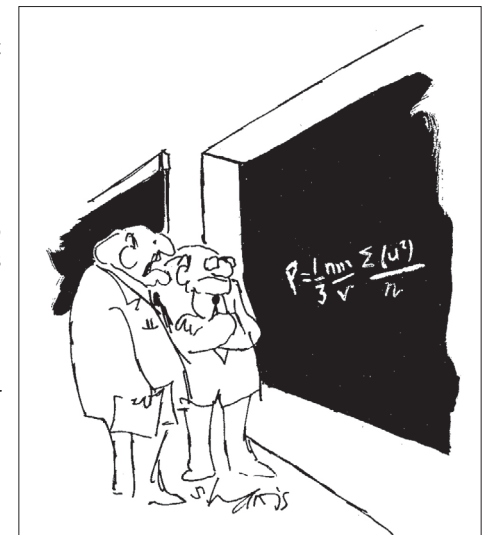
Jonathan Dawes (J.H.P.Dawes@damtp.cam.ac.uk). Further details can be found at www.damtp.cam.ac.uk/user/jhd1002/panda.

YORKSHIRE & DURHAM GEOMETRY DAY

A Yorkshire & Durham Geometry Day will take place on 2 May at the University of Leeds. The speakers will include:

- D. Alekseevsky (Edinburgh) *Para-Kähler geometry and classification of homogeneous para-Kähler Einstein manifolds*
- E. Hunsicker (Loughborough) *Interpolating signature theorems*
- A. Kovalev (Cambridge) *Coassociative submanifolds with boundary*

The meeting is supported by an LMS conference grant. For more information visit the website at www.maths.leeds.ac.uk/pure/geometry/ydgd.



"What's most depressing is the realization that everything we believe will be disproved in a few years."

© Sidney Harris

POSTGRADUATE GROUP THEORY CONFERENCE

The *10th Postgraduate Group Theory Conference* (PGTC) will take place at the Mathematical Institute, Oxford, from 9 to 11 April 2008. The PGTC is a student-organized conference in which post-graduates from UK universities meet to exchange ideas and to get an idea of just what research is being done by research students throughout the country. It is meant as an informal atmosphere and all attendees are encouraged (but by no means forced) to give a talk. These will last twenty minutes, with a short time set aside afterward for a few questions. The plenary speakers are:

- Nikolay Nikolov (Imperial College, London) *Asymptotic group theory*
- Chris Parker (University of Birmingham)

Further information may be found on the conference website at www.maths.ox.ac.uk/~craven/pgtc2008 or by contacting the organizer Dr David Craven (craven@maths.ox.ac.uk). This conference is partially funded by an LMS conference grant.

ERGODIC THEORY MEETING

A one-day *Ergodic Theory Meeting* will be held on Friday 18 April 2008 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, Surrey University and Warwick University, supported by an LMS Scheme 3 grant. The invited speakers are:

- Peter Balint (Budapest) *On the mixing properties of hyperbolic billiards*
- Jens Marklof (Bristol) *Kinetic transport equations for the periodic Lorentz gas*
- Mike Todd (Porto) *Thermodynamic formalism for interval maps*

Further details can be found on the web page at <http://personal.maths.surrey.ac.uk/st/l.Melbourne/Meetings/onedaydynamics2008.html>; or contact Ian Melbourne (I.Melbourne@surrey.ac.uk, 01483 689643).

NOTTINGHAM–POZNAŃ NUMBER THEORY DAY

The *Nottingham–Poznań Number Theory Meeting* will take place on Wednesday 16 April 2008 at the University of Nottingham from 1 pm. The speakers are:

- K. Gornisiewicz (Poznań)
- P. Krason (Szczecin)
- F. Trihan (Nottingham)
- G. Yamashita (Nottingham/Kyoto)

The list of Polish participants includes S. Baranczuk (Poznań, UAM), G. Banaszak (Poznań, UAM) and W. Gajda (Poznań, UAM). For more detailed information contact I. Fesenko (ibf@maths.nott.ac.uk) or visit the website www.maths.nott.ac.uk/personal/ibf/nt_sem.html.

MULTIPLE DIRICHLET SERIES AND AUTOMORPHIC FORMS

An international workshop on *Multiple Dirichlet Series and Applications to Automorphic Forms* will be held from 4 to 8 August 2008 at the William Robertson Building, University of Edinburgh. The meeting is organised by N. Diamantis (Nottingham), I. Fesenko (Nottingham), D. Goldfeld (Columbia) and J. Hoffstein (Brown).

The workshop aims at putting into global perspective the achievements on Multiple Dirichlet Series up to the present and formulating a programme for the future development of the subject. The workshop is part of the activities of the International Centre for Mathematical Sciences, ICMS (www.icms.org.uk), and is also supported by EPSRC, the NSF and the LMS. Details of the meeting can be viewed at www.icms.org.uk/workshops/muldirseries.

The ICMS workshops listed on the next page are funded by EPSRC, SFC, LMS and EMS. For further details of these workshops and all ICMS activities visit www.icms.org.uk; email: enquiries@icms.org.uk; tel: 0131 220 1777.

ICMS Workshops in 2008

- *Effective real analytic geometry* 5–9 May
- *Motivic integration and its interactions with model theory and non-Archimedean geometry* 12–17 May
- *Gravitational thermodynamics and the quantum nature of space time* 16–20 June
- *Geometric analysis, elasticity and PDEs* 23–27 June
- *Logic and algorithms* 21–25 July
- *Multiple Dirichlet series and applications to automorphic forms* 4–8 August
- *Singularities* 25–29 August
- *Grothendieck–Teichmüller theory of dessins d'enfants* 8–12 September
- *Higher dimensional algebraic geometry: Classification, minimal models, Fano varieties and stacks* 22–26 September
- *Large amplitude internal waves* 1–5 December

See www.icms.org.uk for further details.

MIMS NEW DIRECTIONS WORKSHOPS

The Manchester Institute for Mathematical Sciences (MIMS) is marking its first year in the new Alan Turing Building by holding a series of ten workshops during 2008 and early 2009 organized by members of the School of Mathematics. These *New Directions* workshops showcase the broad spectrum of research in the School and some of the current interdisciplinary collaborations both within the University of Manchester and outside. Workshop details, including organizers (from the School of Mathematics, University of Manchester, unless otherwise stated) are as follows:

- *New Directions in Functions of Matrices* 15–16 May 2008; organizer Nick Higham
- *New Direction in Statistics and Biostatistics: Manchester–Tampere Workshop* 29–30 May 2008; organizer Jianxin Pan
- *New Directions in Analytical and Numerical Methods for Forward and Inverse Wave Scattering* 23–24 June 2008; organizers Timo Betcke, Wagner Muniz and Will Parnell
- *New Directions in Tomographic Image Reconstruction* 30 June – 1 July 2008; organizers Marta Betcke, Bill Lionheart and Wagner Muniz
- *New Directions in Toric Topology* 4–5 July 2008; organizers Nige Ray, Victor Buchstaber and Jelena Grbic
- *New Directions in Noncommutative Geometry* 10–11 July 2008; organizers Roger Plymen, Jacek Brodzki (University of Southampton)
- *New Directions in Skew Product Dynamics: Probabilistic Aspects via Ergodic Theory* 10–11 September 2008; organizer Charles Walkden
- *New Directions in Philosophy of Mathematics* September 2008; organizers Alexandre Borovik, David Corfield (University of Kent)
- *New Directions in Statistics with Industry*, September 2008; organizer Jianxin Pan
- *New Directions in Wildland Fire Behaviour and its Implications*, 2009; organizers John Dold, Julia McMorrow (School of Geography), Jonathan Aylen (Manchester Business School)

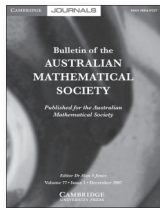
Further details and links to workshop web sites can be found at www.mims.manchester.ac.uk/newdirwshops.html.

CAMBRIDGE

JOURNALS

Multiplying Mathematics Research

With five new titles in 2008, Cambridge Journals continues to publish some of the best pure and applied mathematics journals.



- *The Bulletin of the Australian Mathematical Society*

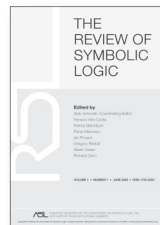
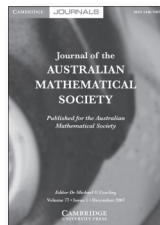
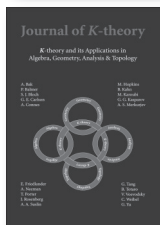
- *Compositio Mathematica*

- *Journal of K-Theory*

- *Journal of the Australian Mathematical Society*

- *The ANZIAM Journal*

- *The Review of Symbolic Logic*



View the complete list of mathematics titles at
journals.cambridge.org/lms08

 CAMBRIDGE
UNIVERSITY PRESS

EUROPEAN STUDY GROUP WITH INDUSTRY

Heriot-Watt University, in association with the University of Edinburgh, the International Centre for Mathematical Sciences (ICMS), the Maxwell Institute for Mathematical Sciences, and the Smith Institute, will be hosting the 64th European Study Group with Industry (ESGI 2008) from 7 to 11 April 2008. The workshop is being supported by the London Mathematical Society and the Edinburgh Mathematical Society.

The Study Group will follow the usual format of presentations from industry, introducing problems on the first day, followed by intensive work on the problems by groups during the next three days and presentations by academics on the final day. A report on each problem will be prepared at the end of the meeting. Speakers during the week will include Jens Gravesen (Technical University of Denmark). See <http://www.ma.hw.ac.uk/esgi08> for more information.

BREADTH AND DIVERSITY OF MATHEMATICS

At the start of the 2007–08 academic year the three Departments of Applied Mathematics, Pure Mathematics and Probability and Statistics at the University of Sheffield federated to form a School of Mathematics and Statistics (SoMaS). On 21 May 2008 SoMaS is hosting a one-day conference, *The Breadth and Diversity of Mathematics*, to celebrate this event. Four external speakers and three SoMaS members (one from each Department) have accepted invitations to speak. The opening talk will be given by the distinguished Fields medallist and Abel prize winner Michael Atiyah (Edinburgh). The other external speakers are Douglas Gough (Cambridge), Jon Keating (Bristol)

and Terry Lyons (Oxford). All interested are welcome to attend but intending participants should register using the form on www.maths.dept.shef.ac.uk/mathslaunch where further information about the meeting can be found. The organisers thank the University of Sheffield and the Applied Probability Trust for financial support.

CHAOTIC MODELING AND SIMULATION

An international conference on *Chaotic Modeling, Simulation and Applications* (Chaos2008) will take place at the MAICH Conference Centre, Chania, Crete, Greece, from 3 to 6 June 2008. The general topics and the special sessions proposed for the conference include but are not limited to:

Chaos and Nonlinear Dynamics, Stochastic Chaos, Chemical Chaos, Data Analysis and Chaos, Hydrodynamics, Turbulence and Plasmas, Optics and Chaos, Chaotic Oscillations and Circuits, Chaos in Climate Dynamics, Geophysical Flows, Biology and Chaos, Neurophysiology and Chaos, Hamiltonian systems, Chaos in Astronomy and Astrophysics, Chaos and Solitons, Micro- and Nano-Electro-Mechanical Systems, Neural Networks and Chaos, Ecology and Economy.

Plenary talks will be given by:

- Hojjat Adeli (Ohio State University)
- Julien Clinton Sprott (University of Wisconsin, Madison)
- Sergey V. Prants (RAS, Vladivostok)
- Tomasz Kapitaniak (Technical University of Łódź)
- Nail Akhmediev (IAS, Australian National University, Canberra)
- Tassos Bountis (University of Patras)

For more information and submission details please visit the conference website at www.asmda.net/chaos2008.

RECORDS OF PROCEEDINGS AT MEETINGS

ORDINARY MEETING

held on Friday 8 February 2008 at the Oxford University Museum of Natural History. About 80 members and visitors were present for all or part of the meeting.

The meeting began at 4.30 pm, with the President, Professor E.B. DAVIES, FRS, in the Chair.

Fourteen people were elected to Ordinary Membership: A.D. Clark, T. Erlebach, G. Garkusha, P.A. Giesl, N. Guay, V. Guletskii, I.Z. Kiss, N.M. O'Connell, Y. Petridis, S. Plata, M.A. Porter, M. Prodromou, B. Sing, A.P. Tonk; seven people were elected to Associate Membership: N.E. Bradshaw, J. Burnett, A.J. Ferguson, M. Hartveit, M.R. Shah, L.A. Stanley, A.L. Stewart; and one person was elected under a Reciprocity Agreement: J.K. Yagasaki (Japanese Mathematical Society).

The Record of the Proceedings of the Society Meeting held on 24 October 2007 was signed as a correct record.

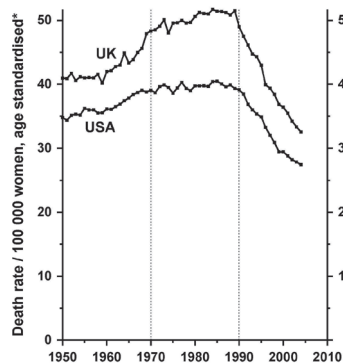
One member signed the book and was admitted to the Society.

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

Dr S.M. PITT introduced the joint lecture given by Sir Richard Peto, FRS, and Professor V. Beral, FRS, the Mary Cartwright Lecturer, on *Mathematics of medicine: breast cancer treatment and prevention*.

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

UK and USA 1950–2004: recent decrease
in breast cancer mortality at ages 20–69



MARY CARTWRIGHT MEETING

8 February 2008

The Society's annual Mary Cartwright Meeting was held in Oxford on Friday 8 February. The meeting began with a brief business meeting of the Society, chaired by the President, Brian Davies, who then handed over to Gwyneth Stallard as current chair of the Women in Mathematics committee for the scientific part of the meeting.

The Mary Cartwright Lecturer in 2008 was Valerie Beral, with companion lecturer Richard Peto. Their lectures complemented each other and were presented under the joint title *Mathematics of Medicine: Breast Cancer Treatment and Prevention*.

Richard Peto spoke first. He described large collaborations

that bring together evidence from many breast cancer trials world wide. Analysis of the combined results allows for detection of treatment effects that are too small to be detected by the individual trials. The accumulation of many such small effects has led to a large overall reduction in mortality rates from breast cancer. These collaborations are long term, with new analyses every five years that build up a clearer picture as more evidence accumulates.

Valerie Beral spoke about the causes of breast cancer. She described the history and development of views of the causes of breast cancer from as early as the eighteenth century, going forward to the 1920s, and then described the results of current research. Combined data from many studies around the world have been analysed to investigate the effects of hormonal factors on breast cancer risk. Large-scale analyses have also shown that lifestyle factors, such as child-bearing patterns, have a large effect on breast cancer incidence rates. Valerie explained how comparison of incidence rates in developed and developing parts of the world shows that women in developed countries are at high risk of breast cancer, and that the risk of those in developing countries, while lower, is increasing as lifestyles become more similar to those in the developed world.

The meeting was held in the Oxford University Museum of Natural History, and was preceded by tea in the Museum. It was followed by a reception in the Mathematical Institute, and then dinner at a restaurant in Oxford.

Susan Pitts
University of Cambridge

REVIEWS

Chases and Escapes: The Mathematics of Pursuit and Evasion by Paul J. Nahin, Princeton University Press, 2007, 270 pp, £14.95, US\$24.95, ISBN 978-0-691-12514-5.

As the title indicates, the author analyses a selection of pursuit problems from a mathematical standpoint. The problems are attractive and reminiscent of those in the *Mathematical*

Games columns of Martin Gardner in *Scientific American*; in fact, some of them are extensions of problems treated in his columns. Accounts of their histories are provided when the problems are introduced. The level of mathematics required is modest. A reader with a knowledge of calculus and ordinary differential equations will find it easy to read; the heavy machinery involved in the theory of differential games is not called upon.

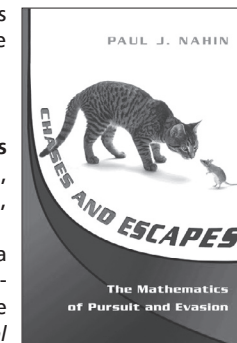
The book is not a research text so it could certainly be recommended to a mathematics student who wishes to do some general reading in mathematics. The material is presented in a pleasing manner with informative diagrams and not too much on a page; the arguments and algebraic manipulations are presented in considerable detail. However, to encourage readers to think for themselves, there are a number of challenge problems within the text, with their solutions given in appendices. The book could provide a useful resource for undergraduate projects. On the one hand there is scope for students to exercise their simulation skills while, on the other, a number of the problems could be a good starting point for literature searches.

To provide a little more detail of the contents, three of the four chapters deal mainly with problems of pure pursuit in the sense that the pursuer moves at each instant of time directly towards its target; however there are some variations to the theme including the pursuit of invisible targets. The third chapter looks at the *n*-bug problem in which each bug is both a pursuer and a pursued. The final chapter discusses seven evasion

problems including *Lady in the Lake*, *Princess and Monster* and Rado's *Lion and Man*.

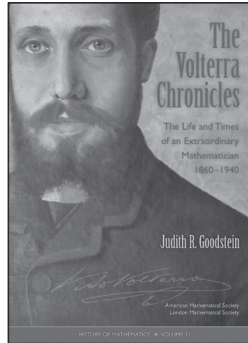
The book is written in a pleasantly relaxed style which makes it an enjoyable read. It conveys the author's enthusiasm for the subject and illustrates that mathematics can be intellectual fun.

Vic Baston



The Volterra Chronicles: The Life and Times of an Extraordinary Mathematician 1860–1940 by Judith R. Goodstein, American Mathematical Society, 2007, History of Mathematics series, volume 31; 310 pp; hardcover ISBN-10: 0-8218-3969-1, ISBN-13: 978-0-8218-3969-0, List price US\$59; LMS member price US\$47

This is the first book-length biography in English of “Italy’s leading spokesman of science” (p.152) in the first decades of the 20th century: the important mathematician, mathematical physicist and (as a member of the Italian Senate from 1905) politician Vito Volterra (1860–1940). Furthermore, the book presents much biographical and general historical material which was hitherto only available in Italian. The author acknowledges the central



importance for her work of the Vito Volterra Papers at the Accademia Nazionale dei Lincei in Rome and of Giovanni Paolini’s “important documentary history *Volterra e il suo tempo*” (p.273). In fact, the importance of Italian mathematics around 1900, when mathematicians outnumbered physicists by four to one in Italy’s universities, has been undervalued by contemporaries and historians alike, not least due to the language barrier. It was the time when algebraic geometry flourished at the hands of G. Castelnuovo, C. Segre and F. Severi, when instruments for relativity theory where forged within differential geometry (E. Beltrami, G. Ricci-Curbastro, T. Levi-Civita), when influential work on the foundations of geometry and on logic was going on (M. Pieri, G. Peano), and when the foundations for the theory of real functions and functionals were laid by U. Dini and V. Volterra. The latter, in addition, co-founded the modern theory of integral equations and made stimulating attempts at ‘hereditary’ elasticity and mathematical biology (fluctuations and equilibria of populations) using his proficiency in integro-differential equations.

Goodstein, who is not a mathematician, generally succeeds in giving an idea of the

path-breaking nature of Volterra’s accomplishments, by short descriptions and above all by quoting the appreciation for him by his contemporaries. The appended reprint of E.T. Whittaker’s 1941 obituary of Volterra with a full bibliography of Volterra’s works is very helpful in this respect. Only a few explanations by the author of notions from calculus (pp.53,69) are less successful. Above all, Goodstein can rely on her intimate knowledge of the Italian language and culture, particularly her expertise – shown in previous publications – on the role of Jews such as Volterra, Castelnuovo, Levi-Civita and many others in Italian academia. This knowledge has been further enhanced by recent publications and editions of archival material (again mostly in Italian) on Italian mathematics before 1945, by historians such as G. Israel. For instance, Goodstein explains certain conservative, anti-republican feelings displayed by Volterra and the latter’s “special kinship to the king” (p.46) by pointing to the “constitutional guarantees his (the king’s) position embodied” for religious minorities. The book describes at length Volterra’s international contacts, his travels to France (his favourite foreign country), Sweden (where his friend G. Mittag-Leffler was directing mathematics), Germany, and not least the United States, where he went twice and at times coveted a position for himself (despite not speaking English). Although impressed by Felix Klein in Göttingen and speaking German as his second foreign language after French, Volterra had early misgivings about German military power and imperialism before World War I. Volterra’s reflections about the conflict, which he saw as existing between power and intellect in

Germany (pp.140–143), this reviewer considers to be among the most interesting passages of the book. During the war, not unexpectedly, Volterra became a fervent Italian patriot, going as far as wishing, in a letter to his wife, that his sons were old enough to be soldiers – this when he had just learned about his French colleague J. Hadamard’s loss of his son at Verdun (p.180). It followed the politically most active period of Volterra’s life when he made contributions in ballistics, founded the Italian Office of Inventions in 1917, became Vice President of the International Research Council (which excluded Germany) in 1919, and then President of the traditional Italian Academy Lincei (1923–1926), which was later incorporated into the new Italian Academy founded by Mussolini (where not Volterra but Severi got the one place reserved for mathematics). The period culminated with Volterra’s refusal to sign the Fascist oath for Mussolini in 1931, and he was therefore deprived of his right to teach at the university in Rome, to

which he otherwise would have been entitled despite his advanced age.

The book devotes only the last of its 15 chapters to this politically most troublesome period while focusing the earlier chapters on Volterra’s academic and personal life, for instance on the traditional way his mother arranged his marriage with the rich Jewish heiress Virginia Almagià. The reader remains thus convinced that much interesting material on Volterra and his time is still to be found in both the Italian publications quoted and the relevant archives. The volume, the first 16 pages of which are filled with interesting photographs, concludes by three appendices, two of which are very interesting and thematically broad speeches by Volterra on the applications of mathematics to biology and the social sciences (1901) and on the state of Italian science compared to international science (1907), both apparently for the first time published in English.

Reinhard Siegmund-Schultze
Kristiansand, Norway



A K Peters, Ltd.

To Order:

Transatlantic Publishers Group
c/o ORCA Book Services
Stanley House, 3 Fleets Lane
Poole, Dorset BH15 3AJ, England
Tel: +44 1202 665432
Fax: +44 1202 666219
www.transatlanticpublishers.com
orders@orcabookservices.co.uk

Or Contact:

A K Peters, Ltd.
888 Worcester St. Suite 230
Wellesley, MA 02482 USA
Tel: (781) 416-2888
Fax: (781) 416-2889
www.akpeters.com
service@akpeters.com

New in Physics from A K Peters

The Wraparound Universe

by Jean-Pierre Luminet

“This beautiful book on the possibility that our universe is a huge optical illusion will change the way you look at the sky. . .”
—*New Scientist*



Hardcover
£22.95



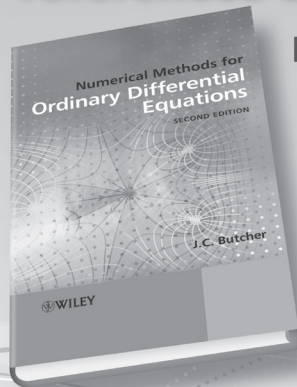
Hardcover
£22.95

Beyond the Nanoworld
Quarks, Leptons, and Gauge Bosons
by Hans Günter Dosch

“The story of how elementary particle physics evolved, over the course of the twentieth century, from primitive beginnings into the strange, brilliantly successful yet clearly unfinished world-theory of today is a great unsung epic of human adventure. *Beyond the Nanoworld* tells the tale with clarity and style.”

—Frank Wilczek, Herman Feshbach Professor of Physics, MIT; 2004 Nobel Laureate

An update of one of the standard references on numerical analysis



Numerical Methods for Ordinary Differential Equations

2nd Edition

John Butcher

Cloth 484pp

March 2007 ISBN: 9780470723357

List Price: £80.00

Also available as an online book at
www.interscience.wiley.com

ISBN: 9780470753767

A unique way to produce a unified and coherent picture of algebra

Classical Algebra Its Nature, Origins, and Uses

Roger Cooke

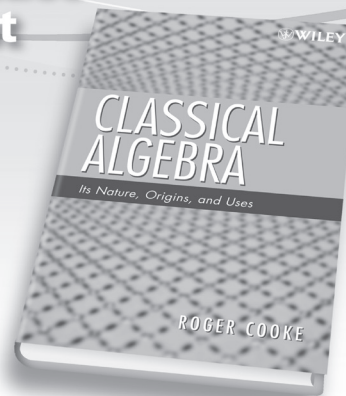
Paper 224pp

March 2007 ISBN: 9780470259528

List Price: £28.95

Also available as an online book at
www.interscience.wiley.com

ISBN: 9780470277980



2389

22

Science from Oxford

OXFORD
UNIVERSITY PRESS

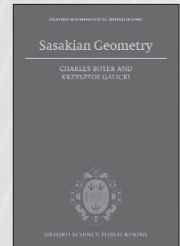
Sasakian Geometry

Charles Boyer, the late Krzysztof Galicki

This book offers an extensive modern treatment of Sasakian geometry, which is of importance in many different fields in geometry and physics.

OXFORD MATHEMATICAL MONOGRAPHS

January 2008 | 978-0-19-856495-9 | Hardback | £75.00



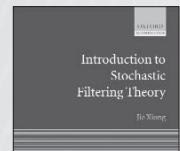
Introduction to Stochastic Filtering Theory

Jie Xiong

Aimed at graduates and researchers in applied mathematics, provides an accessible introduction covering recent developments.

OXFORD GRADUATE TEXTS IN MATHEMATICS

May 2008 | 978-0-19-921970-4 | Hardback | £45.00



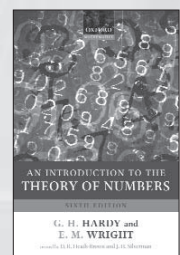
An Introduction to the Theory of Numbers 6/e

Godfrey H. Hardy, Edward M. Wright

A classic undergraduate text in elementary number theory includes new chapters, a foreword by Andrew Wiles and extensively updated end-of-chapter notes.

June 2008 | 978-0-19-921986-5 | Paperback | £30.00

June 2008 | 978-0-19-921985-8 | Hardback | £75.00



Global Catastrophic Risks

Edited by Nick Bostrom and Milan M. Cirkovic

Focuses on Global Catastrophic Risks arising from natural catastrophes, nuclear war, terrorism, biological weapons, totalitarianism, advanced nanotechnology, artificial intelligence, and social collapse.

June 2008 | 978-0-19-857050-9 | Hardback | £25.00

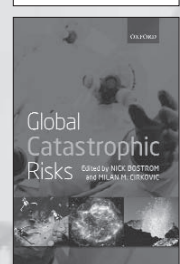
General Relativity and the Einstein Equations

Yvonne Choquet-Bruhat

Overview of the basic ideas in General Relativity, introduces the necessary mathematics and discusses some of the key open questions in the field.

OXFORD MATHEMATICAL MONOGRAPHS

September 2008 | 978-0-19-923072-3 | Hardback | £65.00



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

23

EPSRC

The London
Mathematical
Society 

Nonlinear Parabolic Equations and Applications

LMS–EPSRC Short Course

University of Wales, Swansea, 7–11 July 2008

Organisers: Professor Niels Jacob, Professor Vitali Liskevich, Dr Vitaly Moroz

The course will be organised around three mini-courses and three survey lectures. Each mini-course will be accompanied by tutorial(s), where practical exercises and open problems will be discussed. The course is primarily aimed at postgraduate students in Partial Differential Equations or related fields but much of it should be accessible to anyone with a reasonable background in Analysis. Postdocs and young researchers are welcome to attend.

Mini-courses

- *Theory of fast diffusion* (Juan Luis Vázquez, Madrid, Spain)
- *Blow-up of solutions of semi-linear parabolic equations* (Marek Fila, Bratislava, Slovakia)
- *Cauchy problem for thin films and other nonlinear parabolic PDEs* (Victor Galaktionov, Bath, UK)

Survey Lectures

- *Parabolic problems with dynamic boundary conditions* (Catherine Bandle, Basel, Switzerland)
- *Evolutional problems in image processing* (Alexander Belyaev, Heriot-Watt, Edinburgh, UK)
- *Formal asymptotic methods for nonlinear parabolic equations* (John King, Nottingham, UK)

Further information on the course is available at www-maths.swan.ac.uk/staff/vm/LMS.

Application

Applications should be made using the registration form available on the Society's website at: www.lms.ac.uk/activities/rmc/sc/39poster.html. The closing date for applications is **Friday 9 May**. Numbers will be limited and those interested are advised to make an early application.

Fees

- All research students registered at a UK university will be charged a registration fee of £100.
- Students from countries participating in the European Science Foundation programme *Global and Geometric Aspects of Nonlinear Partial Differential Equations* will be charged £425 (registration fee of £100 plus subsistence costs of £325). There are a limited number of grants available from the programme for students from participating countries, which will pay the fees and subsistence costs. If you are interested in being considered, please tick the relevant box on the application form.
- All other overseas students, postdocs and those working in industry will be charged £575 (registration fee of £250 plus subsistence costs of £325).
- There is funding available from the Wales Institute of Mathematical and Computational Sciences to pay the fees and subsistence of two non-UK (and non-'Global') students. If you are interested in being considered, please tick the relevant box on the application form.

All participants must pay their own travel costs (for EPSRC funded students, this should be covered by their DTA).

LMS–EPSRC Short Courses aim to provide training for postgraduate students in core areas of mathematics. Part of their success is the opportunity for students to meet other students working in related areas as well as the chance to meet a number of leading experts in the topic.

EPSRC

The London
Mathematical
Society 

Advanced Methods in Linear and Nonlinear Elasticity

LMS–EPSRC Short Course

University of Keele, 28 July – 1 August 2008

Organiser: Professor Yibin Fu

The proposed course is aimed at research students in applied mathematics who may need to use elasticity theory, in one way or another, in their research. It is motivated by the fact that most new research students in applied mathematics in the UK do not even have a basic knowledge of elasticity theory, let alone a good understanding of the more advanced methods that are usually only available in research papers or monographs. However, there is now an increasing demand for a good understanding of linear and nonlinear elasticity due to its applications in biomechanics, industrial mathematics, and material science. This course will seek to provide students with a unified derivation of nonlinear elasticity theory with the linear theory derived as a special case and to introduce, with minimal pre-requisites, a number of major methods and ideas that students may incorporate in their current or future research work. The attendees are expected to be familiar with the theory of partial differential equations, matrix algebra and tensor notation. Previous knowledge in elasticity and tensor algebra is useful but not essential.

The course is organised around the following three lecture courses, each course consisting of six lectures and two example classes:

1. *Introduction to nonlinear elasticity theory*
(R.W. Ogden FRS, Glasgow University)
2. *Asymptotic models of solids with cracks and small inclusions*
(A.B. Movchan, Liverpool University)
3. *Stroh/Hamiltonian formulation and its application to linear and nonlinear elasticity*
(Y.B. Fu, Keele University)

More details about this Short Course may be found at the website www.keele.ac.uk/depts/ma/LMS.

All research students registered at a UK university will be charged a registration fee of £100 (in the case of EPSRC-funded research students, this fee should be paid by their departments from their DTA; for non-EPSRC research students, their department might be prepared to pay the fee). Overseas students, postdocs and those working in industry must pay the full subsistence costs of £358, plus a registration fee of £250, making a total of £608 for this course. All participants must pay their own travel costs (for EPSRC-funded students, this should be covered by their DTA).

Applications should be made using the registration form available on the Society's website at: www.lms.ac.uk/activities/rmc/sc/42poster.html.

Numbers will be limited and those interested are advised to make an early application. The closing date for applications is **Friday 30 May**. All applicants will be contacted by the London Mathematical Society approximately one week after this deadline; we will not be able to give information about individual applications before then.

LMS–EPSRC Short Courses aim to provide training for postgraduate students in core areas of mathematics. Part of their success is the opportunity for students to meet other students working in related areas as well as the chance to meet a number of leading experts in the topic.

EPSRC

The London
Mathematical
Society 

Stochastic Partial Differential Equations

LMS–EPSRC Short Course

Imperial College London, 7–11 July 2008

Organiser: Dr Dan Crisan

The aim of the course is to provide a good starting point for future researchers in SPDEs. It will assume that the students are familiar with basic functional analysis and probability theory, Ito calculus and PDE theory and build on this knowledge so that, by the end of the course, the students will have an overall view of the main results, themes and techniques of the area.

The course will consist of three mini-lectures of five hours each on

1. *Wiener Chaos Approach to SPDEs*
(Boris Rozovsky, Brown)
2. *Applications of Malliavin Calculus*
(Marta Sanz-Solé, Barcelona)
3. *Long time behaviour of SPDEs*
(Martin Hairer, Warwick)

and two guest lectures given by Terry Lyons (Oxford) and Istvan Gyongy (Edinburgh). In addition there will be tutorial sessions run by postdoctoral researchers working in the field.

The following topics are prerequisites for the course: Ito calculus, basic functional analysis and PDE theory.

Further information about the course will appear at www.ma.ic.ac.uk/~dcrisan/lmscourse.

Application

Applications should be made using the registration form available on the Society's website at: www.lms.ac.uk/activities/rmc/sc/40poster.html.

The closing date for applications is **Friday 9 May**. Numbers will be limited and those interested are advised to make an early application.

Fees

All research students registered at a UK university will be charged a registration fee of £100. (In the case of EPSRC-funded research students, this fee should be paid by their departments from their DTA; for non-EPSRC research students, their department might be prepared to pay the fee.) Overseas students, postdocs and those working in industry will be charged £575 (registration fee of £250 plus subsistence costs of £325).

All participants must pay their own travel costs (for EPSRC-funded students, this should be covered by their DTA).

LMS–EPSRC Short Courses aim to provide training for postgraduate students in core areas of mathematics. Part of their success is the opportunity for students to meet other students working in related areas as well as the chance to meet a number of leading experts in the topic.

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).

APRIL 2008

- 4 Understanding Cellular Calcium Signals Workshop, Nottingham (367)
- 7-8 Algebraic Structure of Profinite Groups Workshop, Royal Holloway, University of London (368)
- 7-11 LMS Invited Lectures, A. Okounkov, Imperial College London (367)
- 7-11 Combinatorial Identities and Their Applications in Statistical Mechanics, INI Workshop, Cambridge (364)
- 7-11 European Study Group with Industry, Edinburgh (369)
- 9-11 Postgraduate Group Theory Conference, Oxford (369)
- 16 Nottingham–Poznań Number Theory Meeting, Nottingham (369)
- 18 Ergodic Theory Meeting, Surrey (369)
- 22-23 Banach Algebras and Harmonic Analysis Meeting, Leeds (368)
- 23 Higher Dimensional Data LMS Evening Lecture, London (369)
- 25 Women in Mathematics Day, London (369)
- 25 Edinburgh Mathematical Society Meeting, Aberdeen (363)

MAY 2008

- 1 Cancer Can Give You Maths! LMS–Gresham College Lecture, London (369)
- 2 Yorkshire & Durham Geometry Day, Leeds (369)
- 4 400 Years of Geometry, Gresham College Lecture, London (362)

- 5-9 Effective Real Analytic Geometry ICMS Workshop, Edinburgh (369)
- 12-17 Motivic Integration and Its Interactions with Model Theory and Non-Archimedean Geometry ICMS Workshop, Edinburgh (369)
- 15-16 New Directions in Functions of Matrices Workshop, Manchester (369)
- 23 Edinburgh Mathematical Society Meeting, St Andrews (363)
- 29-30 New Direction in Statistics and Bio-statistics Workshop, Manchester (369)

JUNE 2008

- 3-6 Chaotic Modeling, Simulation and Applications Conference, Crete, Greece (369)
- 6 PANDA, Cambridge (369)
- 9 LMS Midlands Regional Meeting, Birmingham (369)
- 10-12 Harmonic Analysis and Partial Differential Equations Workshop, Birmingham
- 16-19 Nordic Conference on Mathematical Statistics, Vilnius, Lithuania (369)
- 16-20 Gravitational Thermodynamics and the Quantum Nature of Space-Time, ICMS Workshop, Edinburgh (369)
- 21 Breadth and Diversity of Mathematics, Sheffield
- 23-24 New Directions in Analytical and Numerical Methods for Forward and Inverse Wave Scattering (369)
- 23-27 Geometric Analysis, Elasticity and PDEs Workshop, Heriot–Watt University (367)
- 23-27 Future Directions in High-Dimensional Data Analysis, INI Workshop, Cambridge (366)
- 30-1 Jul New Directions in Tomographic Image Reconstruction Workshop, Manchester (369)
- 30-4 Jul European Consortium for Mathematics in Industry, University College London (364)
- 30-10 Jul Mathematical Aspects of Graphical Models, LMS Durham Research Symposium, Durham (368)

W. ESSON

LMS member 1866–1899



Maul & Fox, Piccadilly, London

William Esson, MA, FRS, FRAS, FCS
Fellow, Bursar and Tutor of Merton College, Oxford
Fellow of New College, Oxford
Lecturer at Hertford College, Oxford
Savilian Professor of Geometry, Oxford
Member of the Physical Society