THE LONDON MATHEMATICAL SOCIETY

NEWSLETTER

London Mathematical Society

**F o   o   d
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2006

M o d   11 S
SW and South Wales
Regional Meeting,
Bath
P-L. Lions
T. Seppalainen
[*page 5*]

F   d   17 N o
AGM, London
Geometric Analysis
R. Hamilton

offering his ideas and energies to benefit both youngsters and established researchers, and is always encouraging and enthusiastic when sitting through lectures given by students.

Joe Keller was born in Paterson, New Jersey, in 1923 and educated at New York University (PhD 1948). He remained there as a Professor of Mathematics in the Courant Institute of Mathematical Sciences until 1979, at which time he moved to Stanford University to become Professor of Mathematics and Mechanical Engineering. He became Professor Emeritus in 1993, but continues to travel and lecture widely.

Joe's research concerns the use of mathematics to solve a myriad of problems in science and engineering. For example, he developed the Geometrical Theory of Diffraction to describe and evaluate the propagation and scattering of acoustic and electromagnetic waves. It continues to be used wide-

Institute Group in the 1950/60s. Perhaps the most significant aspect of Joe's professional life is the sheer number of people who have worked with him or been influenced directly by his efforts. He has been selfless in

ly, to analyze reflection from objects, to calculate elastic wave scattering from flaws in solids, to study acoustic wave propagation in the ocean, etc. Another

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COLLING OOD PRI E

The 2006 Collingwood Memorial Prize has been awarded to Ruth C. Jenni (St John's College, University of Durham). The Collingwood Memorial Prize, established in memory of Sir Edward Collingwood FRS, President of the Society 1969-1970, is awarded to a final-year mathematics student at the University of Durham who intends to continue to a higher degree in mathematics at Durham or any other university.

MATHEMATICAL SOCIET OF JAPAN PRI ES

Three prizes were awarded at the 2006 Annual Meeting of the Mathematical Society of Japan (MSJ).

T S -T   u P   was founded in 1995 to honour people and organizations who have supported and encouraged the development of Mathematics in Japan over many years. The 2006 Prize was awarded to the Japan-U.S. Mathematics Institute (JAMI). The Japan-US Mathematics Institute was founded in 1988 by the Johns Hopkins Mathematics Department, with the cooperation of the Office of the President of Johns Hopkins University and members of the mathematical community of Japan. JAMI exists to further cooperation between the two countries in mathematical research through broadly based programs in Mathematics. It has organized 18 annual programs in widely ranging fields of mathematics, and the current programme is Recent Developments in *Higher Dimensional Algebraic Geometry*.

T S   P   is awarded each year to a mathematician who is not older than forty and has made an outstanding contribution to mathematics. The 2006 Prize was awarded to Professor Takuro Mochizuki (Kyoto University) for his distinguished contributions to the study of asymptotic behaviour of harmonic bundles. Mochizuki extends the theory of harmonic bundles by Simpson to non compact and higher dimensional case. As an application of his theory, Mochizuki has established Kashiwara's conjecture, that is, the category of semi-simple regular holonomic D-modules on projective varieties is preserved by various functors. Mochizuki's contribution can be viewed also as an extension of the study of asymptotic behaviour of variation of Hodge structures by Cattani, Kaplan, Schmid, Kashiwara, Kawai to the case of harmonic bundles. It should be noted that Kashiwara's conjecture has been proved almost simultaneously and independently by Drinfeld, Gaely   486.4547 7.022y basednt of

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NEWS FROM THE MATHEMATICAL SCIENCES PROGRAMME AT EPSRC

The Mathematical Sciences Programme has a new member. His name is Mark Bambury and he will be looking after Statistics and Applied Probability, and Operational Research.

Contact details for all members of the team can be found on the EPSRC website, but are also listed below:

- Annette Bramley: Programme Manager. Email: Annette.Bramley@epsrc.ac.uk, tel: 01793 444 304
- Anne Farrow: Applied Mathematics (with particular responsibility for studentships). Email: Anne.Farrow@epsrc.ac.uk, tel: 01793 444 110
- Caroline Batchelor: Mathematical Physics and Mathematical Analysis (with particular responsibility for Complexity). Email: Caroline.Batchelor@epsrc.ac.uk, tel: 01793 444 458
- Katharine Bowes: Pure Mathematics (with particular responsibility for Fellowships, Mathematics for Industry and Business and Public Engagement). Email: Katharine.Bowes@epsrc.ac.uk, tel: 01793 444 162
- Mark Bambury: Statistics and Applied

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For further information contact Dr Katharine Bowes (email: Katharine.Bowes@epsrc.ac.uk, tel: 01793 444 162). Closing date: **4.00 pm on 26 September 2006**.

Postdoctoral Fellowships in the Life Sciences Interface 2006/2007

The Life Sciences Interface Programme is offering Postdoctoral Fellowships to enable the most talented young researchers from physical sciences or engineering disciplines to establish an independent research career working across the interface into the life sciences, shortly or immediately after completing a PhD. The awards, which are for a period of up to three years, will be held at a UK academic institution but include provision for the fellow to spend between 12 to 18 months working at a leading overseas laboratory. The award covers the salary cost of the Fellow, the associated costs of the research (including travel and subsistence, consumables and minor equipment) and the additional travel and living costs associated with the period spent working overseas. There are no nationality or residence restrictions on who can hold these fellowships. Closing date: **4.00 pm on 12 September 2006**.

Characterisation, Modification and Mathematical Modelling of Sudsing Systems

EPSRC and Procter & Gamble (P&G) have formed a strategic partnership to jointly fund high quality basic, strategic and applied research. Following the successful announcement of a programme of research in the areas of process engineering, physical and synthetic chemistry, and materials and their properties, EPSRC and P&G are launching a call for Expressions of Interest from those wishing to submit a full research proposal to address research challenges in the area of the characterisation, modification and mathematical modelling of Sudsing Systems (e.g. non-stable foams). The closing date for Expressions of Interest is **4.00 pm on 20 September 2006**.

INTERACT

INTERACT is the EPSRC programme to establish and build strong research links between the UK and India, China or Japan. In this 4th call of INTERACT, we invite applications from UK researchers interested in building strong networks and collaboration with those in India, China or Japan. Funding is provided for travel and subsistence and follow-on funds for the establishment of an international network of activity. It is expected that the strong partnerships formed from this programme will lead to collaborative research activity between high quality research groups in China, India or Japan and those in the UK. Closing date: **4.00 pm on 14 September 2006**.

Please see a full list of current calls on the EPSRC website (www.epsrc.ac.uk/CallsForProposals/).

THE RANKIN LECTURES 2006

A series of five one-hour lectures will be given by Persi Diaconis (Stanford) during the week 6 – 10 November 2006, in the Mathematics Department of the University of Glasgow.
The overall title of the series is:

To quote Professor Diaconis:

"The twentieth century has been called 'the time of taming chance'. Now, we are harnessing chance to make and break codes, find patterns in DNA, and even do basic counting. These themes will be explored in a sequence of lectures aimed at a general scientific public."

In particular, all mathematicians, statisticians, computer scientists, philosophers and other interested members of the public are welcome to attend. At least one of the talks will be accessible to school pupils. Further details of the programme, and details concerning accommodation, can be found at www.maths.gla.ac.uk/~ajb/rankin.
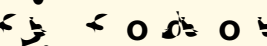
There are limited funds to support the attendance of postgraduate students.

Email enquiries can be made to rankin@maths.gla.ac.uk.
This will be the first in what we intend to be a long-running lecture series, funded by the Glasgow Mathematical Journal Trust, in memory of Professor Robert Rankin, former member of our department.
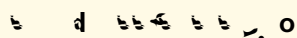
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LONDON MATHEMATICAL SOCIET

2.00	3.00	D d Mu od (B o)

Metrics on the space of simple closed plane curves
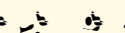
3.00	3.45	T
3.45	4.45	B d S u < (UC B)

Tropical implicitization

5.00	6.00	

The talks are aimed at graduate students and researchers interested in geometry, understood in a wide sense, as applied to problems such as image recognition and other aspects of computation. Anyone interested is welcome to attend; please let Balázs Szendroi know if you intend to come (szendroi@maths.ox.ac.uk).

Abstracts of talks are available from www.maths.ox.ac.uk/~szendroi/spitalfields.html.

There are limited funds available to assist students to attend; please apply by 15 S .

SCOTTISH COMPUTATIONAL MATHEMATICS S MPOSIUM

The 15th Scottish Computational Mathematics Symposium will take place on Thursday 14 September from 10:30-17:30 at Heriot-Watt University, Riccarton Campus, Edinburgh. The speakers are:

- Assyr Abdulle (Basel, moving to Edinburgh)
- Lyonnel Boulton (Heriot-Watt)
- Chris Budd (Bath)
- Mike Giles (Oxford)
- Tony Shardlow (Manchester)

Anyone interested is welcome. The meeting is supported by an LMS conference grant and some funding is allocated for travel for UK-based PhD students. Registration, student funding and other details are at www.ma.hw.ac.uk/scms.

OPERATOR ALGEBRAS AND APPLICATIONS

C o   H o
C   o   L

A conference on Operator Algebras and Applications will be held at the University of Leeds from 21-23 September. The meeting will survey some of the recent progress in operator algebras and applications, and will celebrate the contributions and influence of Professor Christopher Lance in this area of mathematics. The organisers gratefully acknowledge the support of the London Mathematical Society, the University of Leeds, and the University of Aberdeen. Invited lecturers include:

- N.P. Brown (Pennsylvania State)
- J. Cuntz (Münster)
- D.E. Evans (Cardiff)
- E.G. Effros (UCLA)
- E. Kirchberg (HU Berlin)
- M. Mathieu (Belfast)
- M.A. Rieffel (Berkeley)
- J.R. Ringrose FRS (Newcastle)
- A.G. Robertson (Newcastle)
- A.M. Sinclair FRSE (Edinburgh)
- I. Todorov (Belfast)
- S. Wassermann (Glasgow)
- J. Zacharias (Nottingham)

Further information is available from the conference webpage: www.maths.gla.ac.uk/~asw/ecl.htm. Graduate students at UK universities who wish to apply for financial assistance should contact Rob Archbold at opalg@maths.abdn.ac.uk.

ALGORITHMS AND COMPLE IT

The second Algorithms and Complexity in Durham Workshop (ACiD 2006) will be held at Durham University from 18-20 September. The workshop is intended to be a forum for mathematicians and computer scientists working on all aspects of algorithms and complexity. Possible topics include, but are not limited to:

- Algorithm design and analysis
- Computational complexity
- Randomized algorithms
- Algorithmic graph theory
- Combinatorial algorithms
- Approximation algorithms
- Applications of algorithms
- Constraint satisfaction
- Exact and parameterized computation
- Proof complexity
- Databases and information retrieval
- Quantum computing
- Discrete optimization

The invited speakers are:
- Jan Krajicek (Academy of Sciences of the Czech Republic, Prague)
- Alexander Schrijver (CWI, Amsterdam)
- Detlef Seese (AIFB, University of Karlsruhe)
- Berthold Vöcking (RWTH, Aachen University)

The workshop is supported an LMS conference grant. For further information visit the website www.dur.ac.uk/acid.2006/.

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LMS MEETING

The June Meeting of the London Mathematical Society was held on Friday 16 June at University College London. The meeting was ol2 I,Mathemj/President, who hadMathepleas-78 83d9I.0278 Tw(LMS M27)THe42 t taskon Mannounc by

I⸢ A⸲ɑɪ T ⸲: U ⫪⸝ d ⸳ E ⸲⸝ ⸝ R⸲ by N. David Mermin. Princeton, New Jersey: Princeton University Press, 2005. ISBN 0-691-12201-6.

The year 2005 saw a torrent of publications in recognition of the centenary of the *annus mirabilis* during which Albert Einstein published three of the papers for which he was to become best known. Many of the contributions to the torrent took up aspects of Einstein's life and work peripheral to his physics, partly out of the conviction that there was not more to say about his work on the theory of relativity. For those in the physics community, however, there remained more than a lingering doubt that the general public had picked up even a nodding acquaintanceship with that theory. As one of my advisers used to say, 'It's not that most people are still living in a Newtonian world. It's that they're still living in an Aristotelian cosmos.'

N. David Mermin, a long-time professor of physics at Cornell University, is no newcomer to the fray of explaining relativity. As long
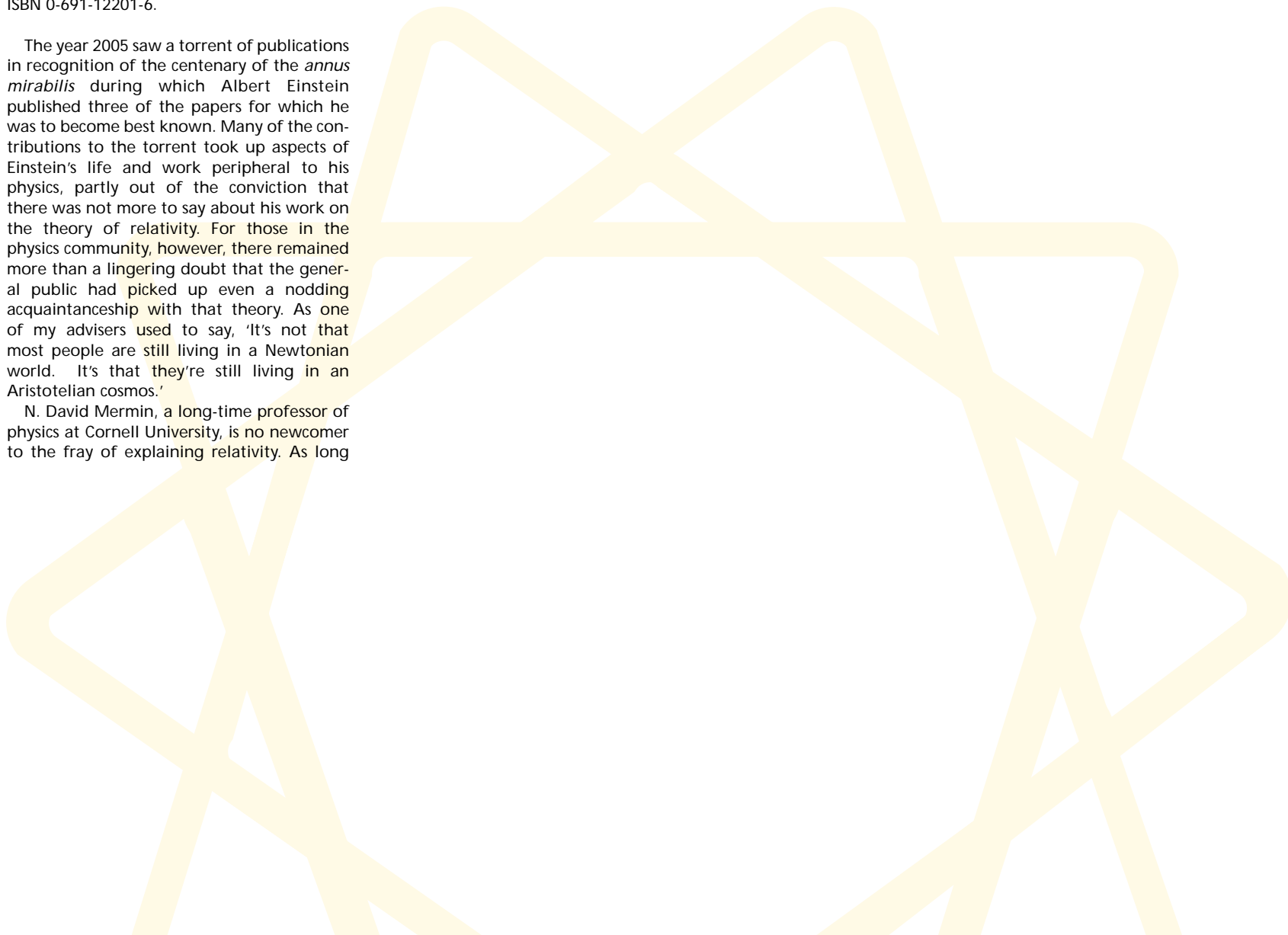
LMS POPULAR LECTURES 2006

How my old school mathematics teacher would laugh to read this review, which reveals his former student with the life-long horror of mathematics as one of the biggest fans of the LMS popular lectures. In this 24th anniversary year, Drs John Haigh from the University of Sussex and Emma McCoy from Imperial College London maintained the consistently high standard which we have all come to expect.

It is a rare delight to witness real expertise which makes the task of addressing an audience covering such a wide spectrum of mathematical ability and interests seem effortless. Luckily the audience is not only limited to those who attended in London during the hottest day on record, or who will attend in Birmingham in September. The DVD will be available as usual from the LMS for those who would like to spread the news further that mathematics can not only be relevant and useful, but entertaining into the bargain. What more could you ask for?

Dr Haigh's talk on probability was entitled *How Likely is That?*, and explored six scenarios, all of which he made accessible on various levels for the interest and amusement of us all. The first was called 'Numbers We Meet', which for the statisticians amongst us was a discussion of the relevance of Benford's Law (1937) regarding the distribution of first significant digits following a log pattern in some data types. For the mathematical historians there was a mention of Simon Newcombe's unsung prior discovery of this effect in 1880, and of T.P. Hill's application of it for the social scientists. For the rest of us there was sage advice on how to make our massage of expenses or tax return figures (if any) look realistic.

His next five scenarios ranged across a broad spectrum of entertaining probability problems from coin tossing through shared birthdates and guessing games. His logical explanations for the surprising and often paradoxical solutions drew on the importance of precise definition of any given problem, Bertrand's Paradox, the Law of Averages and William Feller. He concluded his lecture with a quick reference to his new book '*Taking Chances – Winning with Probability*'.

Dr McCoy's lecture *From Magic Squares to Sudoku* celebrated continuity and evolu-

CALENDAR OF E ENTS

SEPTEMBER 2006
4-8 Noncommutative Geometry and Physics, INI, Cambridge (349)
4-9 Stability, Coupling Methods and Rare Events, LMS/EPSRC Short Course, Heriot-Watt (349)
4-9 Analytic Aspects of Low Dimensional Geometry Symposium Workshop, Warwick, (350)
5-9 Computational and Algorithmic Aspects of Semigroup Theory Workshop, St Andrews (350)
7-9 Modern Mathematical Methods in Science and Technology Conference, Paros, Greece (350)
7-10 British Logic Colloquium, Oxford (350)
8-14 Complex Analysis and Potential Theory Conference, Istanbul (350)
11 Function Theory Meeting, De Morgan House (350)
11 LMS M d   F R o   M   ,
B   (351)
11-12 CETL-MSOR Conference, Loughborough (350)
11-13 British Topology Meeting, Gregynog Hall (350)
11-15 Painlevé Equations and Monodromy Problems, INI, Cambridge (347)
12-15 Analysis and Stochastics of Growth Processes LMS Workshop, Bath (346)
14 Scottish Computational Mathematics Symposium, Heriot-Watt University (351)
15-16 Celebration of Bryan Birch's 75th Birthday, Bristol (348)
18-20 Algorithms and Complexity in Durham Workshop, Durham (351)

18-21 All Hands Meeting, East Midlands Conference Centre, Nottingham (347)
18-22 Painlevé Equations and Monodromy Problems: Recent developments, INI, Cambridge (347)
20-22 Credit Risk under Lévy Models ICMS Workshop, Edinburgh (342)
20-23 Mathematics Methods in Science and Engineering Conference, Spain (350)
21-23 Operator Algebras and Applications Conference, Leeds (351)
25 Waves, Pollution and Modelling Seminar, Loughborough (351)
25-29 Australian Mathematical Society Annual Meeting, Sydney (348)
27 LMS P o u   b u ,
B d   (351)
27 Aspects of Geometry: LMS Spitalfields Day, Oxford (351)
28 Supporting Postgraduates who Teach Mathematics & Statistics, Nottingham (351)
29-30 Heilbronn Institute Annual Conference, Bristol (349)

OCTOBER 2006
3 Supporting Postgraduates who Teach Mathematics & Statistics Workshop, Birmingham (351)
4 The 18th Century: Crossing Bridges, Gresham College London (351)
13 Edinburgh Mathematical Society Meeting, Edinburgh (350)
19 Supporting Postgraduates who Teach Mathematics & Statistics, Leeds (351)
20 UK TeX Users Group, De Morgan House, London (348
23 Supporting Postgraduates who Teach Mathematics & Statistics Workshop, London (351)
25 Supporting Postgraduates who Teach Mathematics & Statistics, Glasgow (351)
25 The 19th Century: Revolution or evolution?, Gresham College London (351)
30-3 N o Recent Advances in Monte Carlo Based Inference Workshop, INI, Cambridge (348)

JAMES ALE ANDER GREEN
DE MORGAN MEDALLIST
2001

Extract from the citation: The De Morgan Medal is awarded to Professor J.A. (Sandy) Green for his fundamental contributions to group representation theory. Green has been one of the most influential figures in representation theory of the last fifty years. In a 1955 paper Green startled the world of representation theory by giving the complex character table of *GL(n,q)* in all generality. Green then turned to the modular representation of finite groups; he established the now fundamental 'Green correspondence'. After 1975, the emphasis of his work changed to algebraic groups. More recently he has made substantial contributions to the study of representations of quantum groups.