

No. 405 July 2011

Society Meetings and Events

2011

Tuesday 19 July Northern Regional Meeting, Leeds [page 3]

Saturday

()

17 September De Morgan House Open Day, London [*page* 12]

Thursday 29 September LMS Popular Lecture, Birmingham [page 13]

Friday 7 and

Saturday 8 October SW & South Wales Regional Meeting, Exeter

Tuesday 11 October Computer Science Day, London

Friday 18 November Annual General Meeting, London

NEWSLETTER ONLINE:

Go to www.lms.ac.uk/ newsletter

LMS COUNCIL DIARY 20 May 2011

۲

A personal view

In an ideal world, the Council of the LMS would have very little to do except formally approve recommendations from its various Officers and Committees. Some of the business at the meeting on 20 May was of this nature. We approved recommendations (a) from Publications Committee via the Finance and General Purposes Committee to commission an external consultant to conduct a long-term review of publishing, (b) from the Prizes Committee for this year's prizewinners, (c) from F&GPC for putting an option on the membership subscription form to make a donation to MARM (Mentoring African Research in Mathematics), (d) to set up a 2015 Celebration Committee, (e) to participate in the Open House London Weekend by opening up De Morgan House on 17 September to guided tours, and assorted other bits of housekeeping.

Another useful ploy is to delegate tricky discussions to subcommittees or working groups. Thus, for example, consideration of the review of (administrative) activities has been delegated to the Personnel Committee. Similarly, matters requiring delicate negotiation are routinely delegated to the General Secretary, Martin Hyland, whose remarkable ability to pour oil on troubled waters is a very valuable asset to the LMS.

Of the more substantial items. discussion of impact continues to generate a great deal of heat. While it is undoubtedly clear to most mathematicians that the HEFCE definition of impact for the REF is completely at odds with the way that mathematics achieves its real impact, nevertheless we are forced to work within it. A discussion document was prepared by the Research Policy Committee and put on the website to solicit comments from the mathematical community on ways we might collectively try to mitigate any negative effects of this policy on mathematics. At the same time, there was strong feeling on Council that we should not give up arguing that the whole impact agenda is fundamentally misguided and will cause huge damage right across academia. (Ironically, it seems that Medicine is in the same boat as we, in that a lot of medical research shows that some treatment or other does not work, and therefore it does not satisfy HEFCE requirements for impact!) A particular danger we must guard against is the potential for it to drive a wedge between pure and applied mathematics: the clear message from Council

1

is that we must stick together to defend our

A bit of light relief came when Don Collins

as Scrutineer presented his suggestions for

how we could implement our decision to

provide more information on the outcome of

Council Elections. While only one member of

Council claimed to understand the system for

counting votes, nevertheless we were able to

agree to report the ranked list of candidates

for each election, and to offer each candidate

a full breakdown of their own votes at each

stage of the counting process (since in any

case they are entitled to this information un-

champagne to toast Ken Brown's 60th birth-

day, and the President spoke warmly of Ken's

huge contributions to the work of the LMS.

After lunch, we discussed the next policy

document to come out of the Research Policy

Committee, namely on Master's degrees.

Currently this is at an early draft stage, and

At lunch, we were treated to a glass of

NEWSLETTER

subiect.

comments will be sought in due course. The perennial problem of lack of a coherent funding regime is one issue, as is the impossibility of complying with the Bologna agreement until this issue is addressed by the Government.

There was some discussion of the relationship between Council and committees. It was emphasised that Nominating Committee is not a committee of Council, as it was set up by a General Meeting, and its business is governed directly by the Bylaws, and not by terms of reference given by Council. It was decided that as a matter of urgency normal communication should be re-established between Council and the Women in Mathematics Committee, which through some oversight appeared not to have reported formally to Council for three years. Finally, Stephen Huggett reported from the website working group that a contract had been signed for the initial scoping for phase 2 of the new website, and that work should start on this soon.

Robert Wilson

LMS Newsletter

der the Data Protection Act).

www.lms.ac.uk/newsletter

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

 $(\mathbf{1})$

Events calendar: please send updates and corrections to calendar@lms.ac.uk

General Editor: Mr A.J.S. Mann (a.mann@gre.ac.uk) Reports Editor: Dr S.A. Huggett (s.huggett@plymouth.ac.uk) Reviews Editor: Dr C.M. Roney-Dougal (colva@mcs.st-and.ac.uk) Administrative Editor: S.M. Oakes (newsletter@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.

Advertising: for rates and guidelines, see www.lms.ac.uk/newsletter/ratecard.html

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

Charity registration number: 252660.

July11-NL.indd 2

2

ne

•

newsletter@lms.ac.uk

No. 405 July 2011

LONDON MATHEMATICAL SOCIETY NORTHERN REGIONAL MEETING Tuesday 19 July 2011 MALL Seminar Room, Mathematics Building, University of Leeds **Programme:** 2.30 Opening of the meeting Gregory Cherlin (Rutgers) The classification of homogeneous combinatorial structures (•) 3.45 Tea/Coffee 4.15 Alexander Kechris (California Institute of Technology) The dynamics of automorphism groups of homogeneous structures 6.00 Dinner at University House These lectures are aimed at a general mathematical audience. All interested, whether LMS members or not, are most welcome to attend this event. For further details, to register or to reserve a place at the dinner, email the organisers (J.K.Truss@leeds.ac.uk). The cost of the dinner will be approximately £30, including drinks. The meeting forms part of a workshop on Homogeneous Structures from 19 to 22 July. For further details visit the website at www.maths.leeds.ac.uk/events/lmsnorth2011 or contact the organisers.

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

۲

ter

The nd-

litv

unnt. onvas tee set s is by vas nal ned heerally nen ing

the ite, on

3

()

۲

NEWSLETTER

www.lms.ac.uk/newsletter

f

and

the

res

• /

ν

ĉ

f

N

۷ i

K

) dre

Pro ple

po[.]

sub

• (

E

١

(

ĸ

Co

• F

 (\bullet)

LMS PRIZES 2011

The winners of the LMS prizes for 2011 were announced at the Society Meeting on 1 July. The Society extends its congratulations to these winners, and its thanks to all nominators, referees and members of the Prizes Committee for their contributions to the Committee's work this year.

PROFESSOR E. BRIAN DAVIES, FRS, of King's College London, is awarded the **Pólya Prize** for his remarkable work in spectral theory, including the powerful heat kernel methods that he developed and his work on non-self-adjoint operators.

Dr JONATHAN PILA, of the University of Oxford, is awarded the **Senior Whitehead Prize** in recognition of his startling recent work on the André–Oort and Manin–Mumford conjectures. The approach he has developed, which combines analytic ideas with model theory, is entirely new and shows great promise for further applications.

PROFESSOR J. BRYCE McLEOD, FRS, of the University of Oxford, is awarded the Naylor Prize and Lectureship in Applied Mathematics in recognition of his important and versatile achievements in analysis of nonlinear differential equations arising in applications to mechanics, physics and biology.

DR JONATHAN BENNETT, of the University of Birmingham, is awarded a **Whitehead Prize** for his foundational work on multilinear inequalities in harmonic and geometric analysis, and for a number of major results in the theory of oscillatory integrals.

DR ALEXANDER GORODNIK, of the University of Bristol, is awarded a **Whitehead Prize** for his work on homogeneous dynamics, with particular emphasis on his deep applications to diophantine problems. PROFESSOR BARBARA NIETHAMMER, of the University of Oxford, is awarded a **Whitehead Prize** for her deep and rigorous contributions to material science, especially on the Lifshitz–Sylov–Wagner and Becker–Döring equations.

DR ALEXANDER PUSHNITSKI, of King's College London, is awarded a **Whitehead** Prize for his contributions to Spectral Theory of Partial Differential Operators and, in particular, to the study of the properties of the discrete and continuous spectrum of Schrödinger operators.

LMS GRANT SCHEMES

Next Closing Dates for Applications 31 August 2011

Small Grants for Education

Funding for grants up to £600 is available to stimulate interest and enable involvement in mathematics from Key Stage 1 (age 5+) to Postgraduate level and beyond. Anyone working in or based in the UK is eligible to apply for a grant. If the applicant is not a member then the application must be countersigned by an LMS member or another suitable person such as a Head Teacher or senior colleague. The next deadline for applications is **31 August 2011**. Please see the website for further details: www.lms. ac.uk/content/small-grants-education.

15 September 2011

Applications are invited for the following grants:

- Conferences and postgraduate research conferences held in the UK (Schemes 1 and 8)
- Celebrating new appointments (Scheme 1)
- Visitors to the UK (Scheme 2)
- Joint Research Groups (Scheme 3 see below about renewal of Scheme 3 grants)
- Research in Pairs (Scheme 4)

Gr

We fol

4

(•)

newsletter@lms.ac.uk

 International short visits with the main focus on Africa (Scheme 5)

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

- Applications received by 15 September 2011 will be considered at a meeting in October.
- Applications should be submitted well in advance of the date of the event for which funding is requested.
- Normally grants are not made for events which have already happened or where insufficient time has been allowed for processing of the application.

Queries regarding applications can be addressed to the Grants Administrators or the Programme Secretary (see below) who will be pleased to discuss proposals informally with potential applicants and give advice on the submission of an application.

- Grants Administrators: Sylvia Daly and Elizabeth Fisher (tel: 020 7291 9971/3, email: grants@lms.ac.uk) who both work Wednesday-Friday.
- Programme Secretary: Stephen Huggett (tel: 01752 586869, email: s.huggett@ plymouth.ac.uk).

Computer Science Small Grants (Scheme 7)

Funding for grants up to £500 is available to support a visit for collaborative research at the interface of Mathematics and Computer Science either by the grant holder to another institution within the UK or abroad, or by a named mathematician from within the UK or abroad to the home base of the grant holder. The next deadline for applications is 15 September 2011 – please see the website for further details: www.lms.ac.uk/content/ computer-science-small-grants-scheme-7.

Grants News

We would like to draw your attention to the following:

Joint Research Groups – Renewal grants (Scheme 3)

۲

ALL renewal applications MUST be accompanied by a Financial and Academic Report for the previous year's activities. Please note that full reports should always be submitted ('light touch' refers to the application procedure only).

Grant holders wishing to renew their application may use the Light Touch Application Form if:

- the grant holder, the supporters and the amount requested have NOT changed; and
- the original or last full renewal application was made in the last TWO years.

Grant holders MUST use the Full Renewal Application Form if:

- the grant holder, the supporters or the amount requested HAVE changed; or.
- the original or last full renewal application was made THREE years ago.

If a renewal application is unsuccessful, normally the grant will be terminated at the end of the calendar year. A supplementary grant will be available to cover actual expenditure for a meeting held during the autumn term. This will normally be the equivalent of the grant awarded for one meeting, e.g. £350, and will not usually exceed one third of the previous year's grant.

Childcare Grants

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

ter

the itetrithe ing

Colize of cudisger

۲

lveage nyligiit is nust anher for see ms.

able

nts:

21)

low

5

NEWSLETTER

www.lms.ac.uk/newsletter

ne

QUEEN'S BIRTHDAY HONOURS

Congratulations to the following who have been recognised in the 2011 Queen's Birthday Honours list:

Officer of the Order of the British Empire (OBE)

 Alan Smith, Head, Data Visualisation Unit, Methodology Directorate, Office for National Statistics

Member of the Order of the British Empire (MBE)

- Geoffrey Charles Smith, Chairman, Bath and Bristol Royal Institution Mathematics Masterclasses, for services to Education
- Alan Paul West, Chief Executive, Exscitec, for services to Science, Technology, Engineering and Mathematics Education

CECIL KING TRAVEL SCHOLARSHIP 2011

The 2011 Cecil King Travel Scholarship has been awarded to Jessica Banks, a DPhil student at the University of Oxford. The London Mathematical Society makes the award of up to £5,000 annually to a young mathematician of outstanding promise, to support a period of study or research abroad for a typical period of three months. Jessica will use the Scholarship to fund a visit to the University of California at Davis to study Seifert surfaces.

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

FELLOWS OF THE ROYAL SOCIETY

()

Amongst those elected to Fellowship of The Royal Society in 2011 were:

- Béla Bollobás, Professor of Mathematics, Fellow of Trinity College, Cambridge and Jabie Hardin Chair of Excellence in Combinatorics, University of Memphis
- Steffen Lilholt Lauritzen, Professor of Statistics, University of Oxford and Fellow of Jesus College, Oxford
- James McKernan, Norbert Wiener Professor of Mathematics, Massachusetts Institute of Technology
- Simon Tavaré, Professor, Department of Applied Mathematics and Theoretical Physics and Professor of Cancer Research, Department of Oncology, University of Cambridge and Senior Group Leader, Cancer Research UK Cambridge Research Institute

Professor Mikhail Gromov, Institut des Hautes Études Scientifiques, was elected a Foreign Member.

For further information visit the website at http://tinyurl.com/5sfbrnk.

FELLOWS OF THE ROYAL SOCIETY OF EDINBURGH

The following mathematicians have been elected Fellows of the Royal Society of Edinburgh:

Corresponding Fellow

 José Alberto Cuminato, Professor of Numerical Analysis, University of São Paulo

Fellow

 James Robert Wright, Professor of Mathematical Analysis, University of Edinburgh

For further information visit the website at www.rse.org.uk/fellowship/elections.

A Re in

The the Bro 20° of The alg to C

a w ma cut boo pro of

The

or

of

۱.

ites ign

e at

een

of

ulo

at at

•

newsletter@lms.ac.uk

No. 405 July 2011

ABEL PRIZE CEREMONY

Rewarding simplicity and beauty in mathematics

The American mathematician John Milnor, of the Institute for Mathematical Sciences, Stony Brook University, New York, USA received the 2011 Abel Prize from His Majesty King Harald of Norway at a ceremony in Oslo on 24 May. The award was presented to Milnor 'for pioneering discoveries in topology, geometry and algebra'. The prize carries a cash award of close to €730,000 and is awarded by the Norwegian Academy of Science and Letters.

The Abel Committee commented, 'Milnor is a wonderfully gifted expositor of sophisticated mathematics. He has often tackled difficult, cutting-edge subjects, where no account in book form existed. Adding novel insights, he produced a stream of timely yet lasting works of masterly lucidity. Like an inspired musical composer who is also a charismatic performer, John Milnor is both a discoverer and an expositor'.

Milnor's insightful ideas and fundamental discoveries have largely shaped the mathematical landscape of the second half of the 20th century. All of Milnor's work displays features of great research: profound insights, vivid imagination, striking surprises and supreme beauty.

Milnor has been hugely influential in modern mathematics. Numerous mathematical concepts, results and conjectures are named after him – Milnor exotic spheres, Milnor fibration, Milnor number and many more. The significance of Milnor's work goes far beyond his own results and he has also written books which are widely considered to be models of fine mathematical writing.

More information about the Abel Prize and this year's Abel Laureate, John Milnor, is available at www.abelprisen.no/en.



۲

۲

7

۲

NEWSLETTER

www.lms.ac.uk/newsletter

ne

M

Ju

Fur The (CN Phy pre for

abl sub

UK and A US edu pog

cha 6g3

The Edu pa ma and cor The lea

Par

ma

tin Pee

Fol the (LN

- htt thr
- ses cor

Rei vul The

End

ABEL PRIZE 2012

Call for nominations

The Abel Prize is an international prize for outstanding scientific work in the field of mathematics, including mathematical aspects of computer science, mathematical physics, probability, numerical analysis and scientific computing, statistics, and also applications of mathematics in the sciences.

The prize is meant to recognize contributions to mathematics and its applications of extraordinary depth and influence. Such work may have resolved fundamental problems, created powerful new techniques, introduced unifying principles or opened up major new areas.

The deadline for nominations is 15 September 2011. Details on how to nominate can be found on the Abel Prize website at www. abelprisen.no/en.

shared, while making the most of the opportunity to connect with others with similar interests. The event includes around 50 'lightning' talks, lunch both days, a three course dinner and accommodation.

For more information about the programme and to register, visit the website at www.mathsjam.com. In particular you can read about the opportunities offered and the team behind the event (Colin Wright, David Bedford, James Grime, Matt Parker and Rob Eastaway).

HARMONIC ANALYSIS AND PDE WORKSHOP

This workshop is a two-day meeting of the LMS Harmonic Analysis and PDE Network which will take place in the Instituto de Ciencias Matemáticas (ICMAT) on the campus of the Universidad Autónoma de Madrid. There

> will be three talks in the afternoon of Thursday 1 September and three talks in the morning of Friday 2 September 2011. The speakers include: Sahbi Keraani

- (Université Lille)
- Joan Mateu (Universitat Autònoma de Barcelona)
- Pertti Mattila

(Helsingin Yliopisto)

 Joaquim Ortega-Cerda (Universitat de Barcelona)

• Luis Vega (Euskal Herriko Unibertsitatea)

There will be an informal dinner in Madrid on the Friday evening at which all participants will be welcome. For further information see http://tinyurl.com/6ygwvux or contact Keith Rogers (keith.rogers@icmat.es). This workshop is funded by an LMS Scheme 3 grant and the Spanish Ministerio de Ciencia e Innovación.

m = D out,

MATHSIAM

After the tremendous success of the Maths-Jam weekend in 2010 the organisers are pleased to announce that MathsJam 2011 will take place the weekend of 12 to 13 November 2011 at Wychwood Park, Cheshire.

MathsJam is a great opportunity for likeminded self-confessed maths enthusiasts to get together and share stuff they like. Puzzles, games, problems, or just anything they think is cool or interesting. The program is designed to maximise the number of ideas

8





 $(\mathbf{ })$

opilar

ıht-

irse

oroe at

can

the

vid

٢ob

the

ork

en-

of

ere

ılks

of ber

the

er-

:o)

) Ла-

all

inor

es).

e 3

cia

e

2 The ۲

newsletter@lms.ac.uk

No. 405 July 2011

MATHEMATICS POLICY ROUND UP

۲

June 2011

Funding for Mathematical Physics

The Council for the Mathematical Sciences (CMS) has written to the Engineering and Physical Sciences Research Council (EPSRC) expressing concern over a problem with funding for mathematical physics. The letter is available on the CMS website at www.cms.ac.uk/ submissions.html.

UK and US cooperation in science, innovation and higher education

A new agreement will see the UK and the US increasing the links between their highereducation institutions, including increased postgraduate student and researcher exchange programmes (see: http://tinyurl.com/ 6g3zjuz).

Paper on early and multiple entry to GCSE mathematics

The Advisory Committee on Mathematics Education (ACME) has published a position paper on *Early and multiple entry to GCSE mathematics* (see: http://tinyurl.com/5vcc7xb) and a summary report from the 2011 ACME conference (see: http://tinyurl.com/6dm644). The IMA and LMS issued a joint press release supporting the ACME paper (see: http:// tinyurl.com/5vlf74r).

Peer Review

Following the call for written evidence from the Science and Technology Select Committee (LMS has submitted a written response; see http://tinyurl.com/5tt8u36) the Committee held three oral evidence sessions in May and further sessions took place in June (see http://tinyurl. com/5tb7gaw).

Report on strategically important and vulnerable subjects (SIVS)

The Higher Education Funding Council for England (HEFCE) has published an evaluation

report on its programme of support for SIVS. The report indicates that 'the programme of support contributed strongly to sustaining provision in SIVS, which include chemistry, physics, engineering and mathematics. Without HEFCEfunded SIVS interventions it is unlikely that provision would have been sustained to the same extent' (see: http://tinyurl.com/6fgx9z4).

Research Councils UK and HEFCE work together on open access

Research Councils UK (RCUK) and HEFCE have announced plans to work together to ensure greater open access to published research. In a speech to the Association of British Science Writers on 24 May 2011, David Willetts, Minister for Universities and Science, outlined the joint commitment RCUK and HEFCE are making to ensure that Open Access becomes a reality (see: http://tinyurl.com/62nvums).

Government response to review of vocational education

The government has published its response to the Wolf Review of Vocational Education. The response can be accessed at http://tinyurl. com/4vv5mh6.

Confederation of British Industry (CBI) Education & Skills Survey

The CBI has published its annual *Education & Skills survey*, which shows that many employers are concerned with the basic skills levels of school and college leavers – including mathematics (see: http://tinyurl.com/5uhatgf).

Public Attitudes to Science 2011

Public Attitudes to Science (PAS) 2011 is the fourth in a series of studies looking at the UK public's attitudes to science, scientists and science policy, building on previous research in 2000, 2005 and 2008. Ipsos MORI, in association with the British Science Association 9

۲

NEWSLETTER

(BSA), conducted this latest study on behalf of the Department for Business, Innovation and Skills (BIS) (see: http://tinyurl.com/622ua7y).

Ofqual to investigate exam standards

Fears that GCSEs and A-levels are getting easier are to be investigated by the exams standards watchdog (see: http://tinyurl.com/ 64lkum7).

Higher Education Policy Institute (HEPI) spring conference

The Higher Education Policy Institute held its spring conference, *The Student Experience: Rising Costs – Raising Expectations*, on 12 May 2011 at the Royal Society in London (see: http://tinyurl.com/5rde964).

Dr John Johnston Mathematics Promotion Unit

NEWS FROM ICMS

Call for proposals

The International Centre for Mathematical Sciences (ICMS) is inviting proposals for ICMS Workshops to take place in 2013. Proposals in all branches of mathematics and its applications are sought. However, as a participating institution in *Mathematics of Planet Earth 2013*, we will be interested in receiving proposals pertaining to relevant subject areas for that year (see www.mpe2013.org).

There are two deadlines per year for workshop proposals, 31 October and 31 March. Proposals received before **31 October 2011** will be considered by the Programme Committee in February 2012. Potential organisers should contact Jane Walker, the Centre Manager at ICMS, to discuss timing and budgets before submitting a firm proposal (jane.walker@icms. org.uk). In addition Keith Ball, the ICMS Scientific Director, will be pleased to advise on all aspects of proposals at any stage (kmb120205@ googlemail.com). Further information on the proposals procedure is available at www.icms. org.uk/proposals.php.

www.lms.ac.uk/newsletter

ne

S

ed

a١

gra

pul

aw

Pul

eve

mo

for

Sci

Ma

ver

Kei

we

Sep

• 1

۲

1

Workshops at ICMS – Summer 2011 and beyond

The following workshops are confirmed and details are available on the ICMS website. Further workshops for 2012 are under consideration by the Programme Committee and will be announced shortly. As it becomes available, further information will be posted on the ICMS website at www.icms.org.uk/forthcomingWorkshops. php.

- Theory of infinity, 4–7 July 2011
- Numerical relativity beyond astrophysics, 11–15 July 2011
- Mathematical imaging in interaction with biomedicine, 5–9 September 2011
- Networks: stochastic models for populations and epidemics, 12–16 September 2011
- Hyperbolic conservation laws and related analysis with applications, 19–23 September 2011
- Dynamical systems and classical mechanics, 3–7 October 2011
- Boundary value problems for linear elliptic and integrable PDEs: theory and computation, 28 May – 1 June 2012

Knowledge Transfer and Public Engagement at ICMS

In recognition of, and to support, the important contribution mathematics has to offer to the wider community, ICMS organises a range of knowledge transfer (KT) activities, to engage both the public and industry. The ICMS is committed to increasing the level of KT arising from ICMS workshops, as well promoting and exploiting the latest research.

Following the appointment of Dawn Wasley as KT Officer last year a number of networking events and lectures have been arranged to involve relevant industrial and commercial interests in the workshop topics. Dawn has also been working with our Communications Officer, Madeleine Shepherd, to produce occasional talks for a wider audience which draw on the wide range of mathematical talent brought to Edinburgh by the workshop programme.

ĉ i 5 Т . ĉ r ν F and pag pro the eve IC The cal on ma lat abo visi Co the

fro op ma

۲

(•)

No. 405 July 2011

newsletter@lms.ac.uk

and

ter

and Furion anher site

.

th ons

l ber ics,

 $(\mathbf{0})$

otic

ent

orto nge en-S is ing ind

orkinilso ficnal

the : to So far this year this year we have presented three public talks. In February, we hosted a workshop on engagements skills for postgraduate students during which there was a public lecture by the popular author Rob Eastaway – Ten Ways to Win a Maths Bet in the Pub. This was accompanied by a book-signing event from Blackwells which proved to be a most successful collaboration. The other two formed part of the Edinburgh International Science Festival in April. These lectures, The Mathematics of Holes by Robert Ghrist (University of Pennsylvania) and Counting Dots by Keith Ball (Scientific Director, ICMS) were both well attended and well received.

The following events are planned for September:

- Industrial participation and networking activities during the *Mathematical imaging* in interaction with biomedicine workshop, 5-9 September 2011
- Industrial participation and networking activities during the Networks: stochastic models for populations and epidemics workshop, 12–16 September 2011

For full information about these activities and details of how to get involved, see the KT page on the ICMS website (www.icms.org.uk/ proposals/kto) where you can also sign up to the mailing lists for announcements of public events.

ICMI ON FACEBOOK

The International Commission on Mathematical Instruction (ICMI) is now alive and active on facebook under the name of *ICMI Mathematical Instruction*. If you want to know the latest updates of the ICMI website, the latest about ICMI activities or details about the site visit of the delegation of the ICMI Executive Committee to Durban, South Africa, select the site for ICME-13, 2016. This can be done from the ICMI main webpage, choosing the options in the lower right corner (www. mathunion.org/ICMI).

SUPPORTING POSTGRADUATES WHO TEACH

۲

The Maths, Stats & OR Network will once again be running an extended programme of one-day workshops at various locations around the country to provide discipline specific support, advice and guidance to postgraduate students who teach mathematics and statistics. The workshops will be hosted by academics with significant experience of teaching within Higher Education, and will cover the following topics:

- Planning and preparing for teaching
- Presenting and communicating mathematics
- Facilitating problem solving classes

 Encouraging participation and providing support

 Assessing student work and providing feedback

The workshops will take place on:

- September 22: Birmingham
- September 27: Nottingham
- September 28: Leeds
- September 30: QMUL, London
- October 3: Southampton
- October 5: Cardiff
- October 10: Bristol

۲

- October 20: Sheffield
- October 28: Edinburgh
- November 3: Manchester

There will be an interactive element throughout and there will be an ongoing series of Questions & Answers to address specific issues that participants may have. The workshops have been designed so that they are applicable to postgraduates who are new to teaching this academic year, as well as those who have prior experience. Registration for these workshops is free of charge. Further details can be found at http:// mathstore.ac.uk/postgrads2011. 11

NEWSLETTER

OpenHouse London

www.lms.ac.uk/newsletter

Mathematical



Open House London Weekend

()

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

Saturday 17 September 2011 Opening Times: 11.00 am – 4.00 pm



View of De Morgan House from the Russell Square Gardens

On Saturday 17 September, De Morgan House will be open to members of the public as part of the Open House London Weekend, a city-wide initiative to encourage people to explore the rich architectural heritage of London.

Members are invited to visit De Morgan House and discover the history behind the buildings. Visitors will be taken on a short guided tour of the buildings, highlighting their architectural features. Tours will run every half hour with a maximum of 10 people per tour.

There will also be a small exhibition on display about the history of the Society.

Admission is free. No advance booking is necessary. Last entry is at 3.30 pm. Any queries should be directed to Elizabeth Fisher (librarian@lms.ac.uk).

12

()

ter

(•)

No. 405 July 2011

LONDON MATHEMATICAL SOCIETY

()

POPULAR LECTURES 2011

University of Birmingham – Thursday 29 September

Dr Colva Roney-Dougal St Andrew's University

Symmetry, Chance & Determinism

By playing some games with symmetries, we'll discover the surprising fact that choosing randomly can give the same answer (almost) every time!





Dr Hilary Weller University of Reading

How Climate Models Work and Could They Be Better?

Hilary Weller will describe some of the physics behind how the real climate works, some of the mathematics involved in creating a computer model of the climate to make climate predictions <u>and</u> how climate data is gathered in order to test the models.

We will see that, although climate models are far from perfect, some predictions can be made with confidence.

BIRMINGHAM: Commences at 6.30 pm, refreshments at 7.30 pm, ends at 9.00 pm. Admission is free, with ticket. **Register by Friday 23 September.**

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

The lectures are intended to be suitable for a general audience and no specific mathematical knowledge will be assumed. Although the talks are not primarily intended for professional mathematicians, everyone is welcome and some members may wish to apply for tickets for friends and relatives.

. .

13

(�)

NEWSLETTER

www.lms.ac.uk/newsletter

M

The

pla

Sep

cor

bro

spe

• J • S

•]

k

Т

and

inf

ord

po

bu

Ma

ne

MATHEMATICAL AND THEORETICAL ECOLOGY

The Mathematical & Theoretical Ecology (MATE) 2011 meeting will take place at the University of Essex from 19 to 21 September 2011 and have a central theme of *Linking models with ecological processes*. We expect that contributed talks and discussions will have an emphasis on novel mathematical and simulation methods or novel applications of existing theoretical methods that may be useful to address ecological problems. Alternatively, we also welcome contributions from experimental ecologists who wish to engage with theoretical modellers. Keynote speakers are:

- Larissa Conradt (Sussex)
- Odo Diekmann (Utrecht)
- Rampal Etienne (Groningen)
- Daniel Grunbaum (Washington)
- Ruth King (St Andrews)
- Mark Lewis (Alberta)
- Philip Maini (Oxford)
- David Sims (Plymouth)
- Jonathan Sherratt (Heriot-Watt)
- Nico Stollenwerk (Lisbon)

The Honorary Lecture will be given by Simon Levin (Princeton). Theme sessions include: Evolutionary Ecology, Community Ecology, Plankton Ecology, Statistical Ecology, Movement Ecology, Behavioural Ecology, Plant Ecology, Epidemiology, Spatial Ecology, Modelling & Ecology Forum. In addition, the organizers will also run a number of 'open' sessions and will consider any appropriate contributed talk or poster in the field of mathematical and theoretical ecology.

Deadline for registration for those wishing to give a contributed talk or poster is **1** August 2011. Deadline for registration for those wishing to attend only is **1** September 2011. For further information visit the website at http://privatewww.essex.ac.uk/~ecodling/ MATE2011.html or email MATE2011@essex. ac.uk. The workshop is supported by an LMS Conference grant.

CALCO 2011

۲

The 4th International Conference on Algebra and Coalgebra in Computer Science (CALCO) will take place between 30 August and 2 September 2011 in Winchester, UK. CALCO aims to bring together researchers and practitioners with interests in foundational aspects, and both traditional and emerging uses of algebras and coalgebras in computer science. This is a high-level, bi-annual conference formed by joining the forces and reputations of CMCS (the International Workshop on Coalgebraic Methods in Computer Science), and WADT (the Workshop on Algebraic Development Techniques). Previous CALCOs took place in Swansea, Wales, 2005, Bergen, Norway, 2007 and Udine, Italy, 2009. The invited speakers for 2011 are:

Vincent Danos

(University of Edinburgh)

- Javier Esparza (Technische Universität München)
- Philippa Gardner
 - (Imperial College London)
- Gopal Gupta

 $(\mathbf{ })$

(University of Texas at Dallas)

CALCO 2011 will be preceded (on 29 August) by the CALCO Young Researchers Workshop (CALCO-Jnr), dedicated to presentations by PhD students and by those who completed their doctoral studies within the past few years. The CALCO programme will also comprise presentations of tools based on algebraic and/or coalgebraic principles, that have been selected in the context of a dedicated workshop, CALCO-Tools.

For further information visit the website at http://calco2011.ecs.soton.ac.uk. Limited financial assistance is available for PhD students. The meeting is supported by an LMS Conference grant, a British Logic Colloquium conference grant and the University of Southampton.

e:



14

•



The one-day Function Theory Meeting will this year be held on Monday 5 September 2011 at De Morgan House, Russell Square,

- London. The speakers are: Matt Buck
 - (University of Nottingham)
- Alain Escassut (Université Blaise Pascal)
- Aimo Hinkkanen (University of Illinois at Urbana-Champaign)
- Anthony O'Farrell (National University of Ireland, Maynooth)
- Sebastian Schleissinger (Universität Würzburg)
- Gwyneth Stallard (The Open University)
- Scott Thomson (Durham University)



The 26th British Topology Meeting will take place at the ICMS in Edinburgh from 1 to 3 September 2011. There will be a number of contributed talks as well as invited talks in a broad range of topics in topology. The invited speakers are:

- Javier Aramayona (Galway)
- Stefan Friedl (Cologne)

newsletter@lms.ac.uk

- Jacob Rasmussen (Cambridge)
- Saul Schleimer (Warwick)
- Catharina Stroppel (Bonn)
- Ulrike Tillmann (Oxford)
- Karen Vogtmann (Cornell)

The organizers are Jim Howie (Heriot-Watt) and Andrew Ranicki (Edinburgh). For further information visit the website at www.icms. org.uk/workshops/btm. The meeting is supported by an LMS Conference grant, the Edinburgh Mathematical Society and the Glasgow Mathematical Journal Trust.

FUNCTION THEORY MEETING

۲

ter



ay, ted

(�)



ebuk. for bv gic ni-



()

6/23/2011 5:34:10 PM



15

No. 405 July 2011

NEWSLETTER

www.lms.ac.uk/newsletter

ne

۲

INDUCTION COURSE FOR NEW LECTURERS

The Maths, Stats & OR Network will once again be running its two-day Induction Course for lecturers new to teaching Mathematics and Statistics within Higher Education. The Induction Course will take place at the School of Mathematics, University of Birmingham from 15 to 16 September 2011. The course has been running since 2001, and over 200 new academic members of staff have benefited from attending in this time. In the past, attendance has been recognised as contributing towards some introductory institutional programmes in learning and teaching for new staff (certificated or otherwise and depending on institution).

Sessions will cover approaches to teaching mathematics including lectures and example classes, as well as using technology to enhance education and an introduction to education research. Further details can be found at http://mathstore.ac.uk.

PREPARING FOR STUDENT LED EDUCATION

The 2011 CETL-MSOR Conference Preparing for Student Led Education will be held at the University of Coventry from 5 to 6 September 2011. The aim of the conference is to promote, explore and disseminate effective practice and research findings in mathematics and statistics teaching, learning, support and assessment. The conference will appeal to all those teaching Mathematics, Statistics or Numeracy in higher education, whether this is to specialist mathematics students or students studying components of mathematics within their degree programmes (such as bioscience, chemistry, computer science, economics, engineering, nursing, physics, psychology, social work, etc.). The conference will explore the following themes:

Better teaching

()

- Flexible learning
- Graduate impact

Registration is now open. Further details can be found at: http://mathstore.ac.uk/ conference2011.

DOMAINS X

A Domains X workshop will take place at Swansea University, Wales from 5 to 7 September 2011. It is aimed at computer scientists and mathematicians alike who share an interest in the mathematical foundations of computation. The workshop will focus on domains, their applications and related topics. Besides its traditional topics, Domains X will have the special themes Modelling of computational effects and Modelling continuous data. Confirmed speakers are:

- Lars Birkedal (IT University of Copenhagen)
- Nick Benton (Microsoft Research Cambridge)
- Margarita Korovina (University of Manchester)
- Dag Normann (University of Oslo)
- John Power (University of Bath)
- Matija Pretnar (University of Ljubljana)
- Thomas Streicher (University of Darmstadt)
- Jeff Zucker (McMaster University)

Domain theory has had applications to programming language semantics and logics (lambda calculus, PCF, LCF), recursion theory (Kleene–Kreisel countable functionals), general topology (injective spaces, function spaces, locally compact spaces, Stone duality), topological algebra (compact Hausdorff semilattices) and analysis (measure, integration, dynamical systems). Moreover, these applications are related – for example, Stone duality gives rise to a logic of observable properties of computational processes.

Limited support is available for graduate students. For further information see www. cs.swan.ac.uk/domains2011. The meeting is supported by an LMS Conference grant.

16

July11-NL.indd 16

ter

newsletter@lms.ac.uk

No. 405 July 2011

ails uk/

at epenan of doics. will om-

ous ۲ en)

dt)

to ogheals), ion ty), emon,

icality

ties ate

vw. g is



American Mathematical Society

۲

GEOMETRY A Guide for Teachers

Judith D. Sally, Northwestern University & Paul J. Sally, Jr., University of Chicago

Consists of ten seminars covering in a rigorous way the fundamental topics in school geometry, including all of the significant topics in high school geometry. The seminars are crafted to clarify and enhance understanding of the subject. Concepts in plane and solid geometry are carefully explained, and activities that teachers can use in their classrooms are emphasized. The book draws on the pictorial nature of geometry since that is what attracts students at every level to the subject.

MSRI Mathematical Circles Library, Vol. 3

Jun 2011 205pp 978-0-8218-5362-7 Paperback £28.95

A co-publication of the AMS and Mathematical Sciences Research Institute

17

()



PROBABILITY TALES

Charles M. Grinstead, Swarthmore College, William P. Peterson, Middlebury College & J. Laurie Snell, Dartmouth College

Explores four real-world topics through the lens of probability theory. It can be used to supplement a standard text in probability or statistics. Most elementary textbooks present the basic theory and then illustrate the ideas with some neatly packaged examples. Here the authors assume that the reader has seen, or is learning, the basic theory from another book and concentrate in some depth on the following topics: streaks, the stock market, lotteries, and fingerprints. This extended format allows the authors to present multiple approaches to problems and to pursue promising side discussions in ways that would not be possible in a book constrained to cover a fixed set of topics.

Student Mathematical Library, Vol. 57 Jul 2011 246pp 978-0-8218-5261-3 Paperback £30.95

To order AMS titles visit www.eurospanbookstore.com/ams

CUSTOMER SERVICES: Tel: +44 (0)1767 604972 Fax: +44 (0)1767 601640 Email: eurospan@turpin-distribution.com FURTHER INFORMATION: Tel: +44 (0)20 7240 0856 Fax: +44 (0)20 7379 0609 Email: info@eurospangroup.com



distributed by Eurospan | group



۲

NEWSLETTER

www.lms.ac.uk/newsletter

LMS–GRESHAM LECTURE

Report

18

•

The joint LMS–Gresham College lecture has quickly established itself as an annual event of some note. Inaugurated by Chris Budd on the mathematics of crime in 2006, we have heard further outstanding lectures by Tim Gowers on multiplication and division, Philip Maini on how mathematics helps us understand cancer, Tom Körner on mathematics and smallpox, and Caroline Series on fractal filigrees. Angus Macintyre's lecture on 17 May 2011 on Undecidable and decidable problems in mathematics was an excellent addition to the series, attracting a capacity audience, filling not only the main hall of Gresham College but also the overflow room.

The subject was timely, with the Turing centenary imminent, and the content of the lecture ranged over a fascinating variety of results in modern logic. We heard first about the work of Turing and Church which led to a definition of computability. The lecture then moved on to Matejasevic's proof that there

is no algorithm which can decide whether an equation with integer coefficients has an integer solution, and its amazing spin-off that there exists a polynomial (in sixteen variables) such that the positive values it takes are precisely the prime numbers. We learned about Professor Macintyre's own work and finished with an appreciation of the work of Gödel, Turing and Cohen. A number of penetrating questions showed that the Gresham College audience had found the lecture stimulating and eniovable, and we then continued the discussion at the reception which traditionally follows these events.

The lecture was remarkably successful in giving a non-expert audience an introduction to such difficult but important mathematics. Happily, it was recorded and can be viewed, in video or audio or by downloading the presentation, on the Gresham College website at http://tinyurl. com/62t6mol.

At a time when the future of public research funding is being debated, public lectures like this, to a non-specialist audience, provide a valuable opportunity to communicate the fascination, value and importance of mathematics (as of course do the LMS Popular Lectures). The LMS-Gresham College lecture series has been a model of this kind of communication, and Professor Macintyre's lecture, like its predecessors, showed how it is possible to describe deep, specialist mathematics in an accessible way without in any sense 'dumbing down'. In the current financial climate this initiative is particularly valuable, and the large audience owes many thanks to the LMS organisers and to Robin Wilson and Barbara Anderson at Gresham College for their hospitality.

> Tony Mann University of Greenwich



(Left to right) Joan Lasenby, Claire Gilson and Rowena Paget. The morning speakers for *Women in Maths Day 2011*.

on is t ter ٦ wit and spe gav ble on wa wh ma for eve pro wo ma tal net

()

Re

The



newsletter@lms.ac.uk

No. 405 July 2011

vas dio the url.

ter

rch res ide the heılar ure mire, ssiiatnse cliole, to nd for

inn rich (�)



et.



۲

Winner of the 2011 Poster Competition: Ndifreke Udosen, University of Reading

LMS WOMEN IN MATHEMATICS DAY 2011 Report

The annual Women in Maths Day was held on Friday 6 May at De Morgan House and this is the second Women in Maths Day I have attended. The first was in Cambridge last year.

The event was similar to the previous one with talks given by women mathematicians and there was a poster competition. The first speaker was Dr Claire Gilson (Glasgow) who gave a talk on box-and-ball systems in integrable systems. Rowena Paget (Kent) then spoke on set partitions and symmetric groups. This was followed by Joan Lasenby (Cambridge) whose talk was about the mathematics of making movies. It was really encouraging for the female mathematics students at the event to hear these talks as we heard of the progress, movement and achievement of women in mathematics in the UK.

During lunch we could meet other female mathematicians who are experts in their field, talk to them, discuss the research findings and network with the other participants.

The poster session also took place over

lunch and participants were asked to vote for their favourite out of ten posters in the poster competition. The winner was Ndifreke Udosen (Reading) for her poster *Framework for solving meta inverse problems* and she was presented with a £50 book token.

The afternoon talks and poster session were brilliant ideas, where PhD students had the chance to present their research. The talks were given by Kyriaki Giorgakoudi (Institute for Animal Health & Loughborough), Jonith Fischmann (QMUL), Heather Harrington (Imperial College), Stefanie Hittmeyer

(Bristol), Samantha Newsham (Lancaster) and Vivienne Blackstone & Kate Miller (EPSRC).

After the event, several participants went for dinner at a nearby restaurant where there were further discussions.

Like me, some of the participants come from countries where there are not many female mathematicians and there were many things that we gained from the event for example, exchanging ideas in research among participants, and I found the experience enjoyable and valuable. It was very rewarding to attend such an event during my studies.

> Rohmatul Fajriyah University of Essex

BRITISH LOGIC COLLOQUIUM 2011

The annual meeting of the British Logic Colloquium will take place in the Informatics Forum of Edinburgh University from 1 to 3 September 2011. There will be invited and contributed talks on topics from Mathematical Logic, Computational Logic and Philosophical Logic. For more information visit the website at http://dream.inf.ed.ac.uk/events/ blc-2011. The meeting is supported by an LMS Conference grant. 19

(�)

NEWSLETTER

www.lms.ac.uk/newsletter

BRITISH SCIENCE FESTIVAL 2011

The British Science Festival is organized by the British Science Association (formerly the British Association for the Advancement of Science) and takes place this year in Bradford from Saturday 10 to Thursday 15 September with the theme *Exploring New Worlds*. The Mathematics Section is organizing a number of events:

Saturday 10 September

1 pm – 3 pm Vital Statistics: Sport's Key to Decision Making (Royal Statistical Society) 3.30 pm – 5 pm The Maths and Computing Magic Show (Peter McOwan, Matt Parker, QMUL).

20 Weekend 10–11 September

(•)

Maths and Statistics Busking in the city centre (Sara Santos, Royal Institution and Debra Hurcomb, RSS, are the organizers).

Tuesday 13 September

1 pm – 3 pm *Maths Makes Waves* (Chris Budd, Bath, is the organizer).

Wednesday 14 September

1 pm – 2 pm *The Art of Numbers*, together with an exhibition (this event is organized by Bradford University).

Thursday 15 September

4.30 pm – 5.30 pm Presidential lecture: *New Patterns – New Perspectives* (Caroline Series, Warwick), followed by a wine reception sponsored by the LMS.

Schools Programme

X and Y Factor – A Mathematics Multi-media Competition (Katie Chicot, Open University) with an award ceremony on Tuesday 13 September, 11 am – 1 pm.

Any queries should be directed to Peter Giblin (pjgiblin@liv.ac.uk), 'Recorder' of the Mathematics Section. For full details of the Festival visit www.britishscienceassociation. org/web/BritishScienceFestival.

2012 Festival

۲

For the 2012 Festival, in Aberdeen (4–9 September) the Mathematics Section is keen to hear from anyone with a possible idea for a mathematics, statistics or computing based event. The mission of the British Science Association is to communicate the excitement and relevance of science, including mathematics, to the wider public. Thus the 'unexpected usefulness of mathematics' is a strong theme. The programme for 2012 will be fixed around the end of October 2011. Any ideas or offers of help should be sent to Peter Giblin (pjgiblin@liv.ac.uk).

REVIEWS

The William Lowell Putnam Mathematical Competition 1985–2000: Problems, Solutions and Commentary by K. Kedlaya, B. Poonen, R. Vakil, MAA, 2011, 352 pp, £37, US\$59, ISBN 978-0-8838-5827-1.

The William Lowell Putnam competition is considered to be one of the hardest mathematical competitions for undergraduate students in the world. It is open to university students in USA and Canada and held in two sessions on the first Saturday of December with six problems for each session. The problems can all be solved with basic undergraduate mathematics but all need a non-standard approach or idea. The Putnam is notoriously difficult: in the first place the problems are hard; in the second, a partial solution carries very little or no credit. As a result, most of the participants receive a total score less than five (out of 120). Another interesting rule is that the ranking of the top five scoring students (the Putnam Fellows) is not provided.

The Putnam competition has been running since 1938 and this book, which is the third in

the 200 sol of kno fer to fou lim ger que abo ma triv Rez len Pu1 for cor cha the bea dai

Exi 320 N fou He wit mo ma geo wh - v ide wo ŀ tin ma lan thr two

Ma

newsletter@lms.ac.uk

No. 405 July 2011

the series, covers the period between 1985 and 2000. The most striking feature is the detailed solutions section, which occupies the majority of the book. Multiple solutions are given when known, and provided they are sufficiently different and/or illustrate different approaches to the problem. Some of these solutions were found by the competitors themselves in the limited time of the contest. Connections with general theories and current research are frequently given, which invite the reader to think about new and old open problems in Mathematics. There is also a detailed list of results. trivia facts and an entertaining article by Bruce Reznic on the selection of the Putnam problems and what it means to be a member of the Putnam committee. The book will be invaluable for anybody with an interest in mathematical competitions or just trying his or her hand at challenging Mathematics at university level. All theories begin with simple, easy to state and beautiful problems and this book has an abundant supply of those.

> Nikolai Nikolov Imperial College London

Mathematics of Life: Unlocking the Secrets of Existence by Ian Stewart, Profile Books, 2011, 320 pp, £20, ISBN 978-1-8466-8198-1.

Mathematicians and physicists have long fought over the big names. Newton?

He was one of us, the physicists claim, with his studies of gravity, light and motion. But he invented calculus, the mathematicians reply, he worked on geometry and harmonic series. And what about Stokes, Dirac and Einstein – were they motivated by the abstract ideas of mathematics or the natural wonders of physics?

If a rapidly developing trend continues, mathematicians and biologists may soon be having similar arguments. Ian Stewart's latest book guides us through the recent collision of these two fields. This is not a book about mathematics with a bit of biology sprinkled on afterwards – *Mathematics of life* weaves a history of biology with examples of how mathematics can help solve the unanswered questions that were created along the way. Mathematics, Stewart argues, will be the next biological revolution.

۲

In fact it's already happening. In the last couple of decades mathematicians have increasingly become involved in everything from ecology to genetics – the tools at their disposal a valuable addition to existing biological methods. Science is evolving, with new levels of cooperation allowing us to do things that were once unachievable.

Of course, mathematical biology covers a bewilderingly large variety of research. Many of these topics would fill books on their own, so instead Stewart gives us an overview of a few key research areas over the course of nineteen chapters. Well-chosen illustrations allow the reader to get their head around the biological background, and analogies are provided to help them understand the systems that mathematicians are working to explain. The topics covered are wide ranging: how symmetry plays a role in virus structure, the split of a single species into two and even animal coat patterns; why game theory – famously used in *A beautiful mind* to ensure that everyone gets a date – can help find



21

()

the

on.

1–9 is ble omthe niscider ess The

ınd

or Iin

۲

ical ons nen, SBN

n is

nati-

s in s in the for vith ed a m is robtion host han that

ing d in

(the

Stewart is a stalwart of the popular maths

genre, having previously written accounts of

mathematical subjects as diverse as chaos theo-

ry, symmetry and probability, and his engaging,

accessible style is also present here. In fact, this

book doesn't contain much mathematics in the

shape of formulae and calculations, but this is

precisely Stewart's point about mathematical

biology - the puzzles should come from the bi-

ologists, rather than biology just being another

area of application for existing mathematical

As well an author. Stewart is also a researcher.

and his work on how animals walk inevitably

gets a mention, sandwiched between sections

on the brain and leech heartbeats. The book's

breadth, ambitiously aiming to give the reader

a gist of many different corners of such a big

research field, makes it an interesting read but

inevitably creates a weakness too - many top-

ics are omitted or mentioned only too briefly.

However, by including a solid biological back-

drop for the problems he does cover, Stewart

gives the book a nicely rounded feel, even if

some chapters leave the reader wanting more.

As an overview, it provides an entertaining and

Despite its title, this is a book for fans of biol-

ogy as much as for those interested in mathe-

matics. In many ways it reflects the increasingly

blurred boundaries between the two subjects

(I know mathematicians that work in zoology de-

partments, medical schools and even for govern-

ment health agencies), and gives an absorbing

introduction to one of the fastest growing areas

of modern science. According to Aristotle, "in all

things of nature there is something of the mar-

A version of this review first appeared in Plus maga-

zine (http://plus.maths.org).

vellous". Now mathematics can help us find it.

up-to-date insight into this exciting field.

NEWSLETTER

probability.

results.

www.lms.ac.uk/newsletter

18

18

Re

Sy

19

IC

19

(4

19

Le

21

M

25

То

(4

25

Pr

25

Lo

28

Co

29

Α

1-3

1-3

Ge

1-1

LN

9-

Lir

W

15

(4)

15

IN

17

Εv

22

Μ

(4)

29

W

29

ar

Be

29

LN

Ur

۲

out which evolutionary strategies are best; what problems in genetics can be understood using

()

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

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

JULY 2011

1 LMS Meeting, London (404)

1 Developing Mathematical Thinking Through Problems, Puzzles and Games Workshop, Greenwich (402)

3-8 British Combinatorial Conference, Exeter (403)

 3-8 Tropical Geometry and Integrable Systems Conference, Glasgow (403)
 4-7 Theory of Infinity ICMS Workshop,

Edinburgh (405) 4-14 Geometry and Arithmetic of Lattices

LMS-EPSRC Durham Symposium, Durham

4-23 Gauge Theory and Complex Geometry Conference and Workshop, Leeds (402)5-10 Royal Society Summer Science Exhibition,

London (404)

9-11 Quantum Cohomology, Symplectic Resolutions and Representation Theory Meeting, Oxford (403)

11-15 Numerical Relativity Beyond Astrophysics ICMS Workshop, Edinburgh (405) **12-14** RSME Conference on Transfer and Industrial Mathematics

13-15 Mathematics of Filtering and its Applications Workshop, Brunel University (402)

16-24 International Mathematical Olympiad, Amsterdam

18-20 Toric Methods in Homotopy Theory Conference, Belfast (398)

18-22 Experiments for Processes with Time or Space Dynamics INI Workshop, Cambridge (400)

18-22 Duality, BSDEs and Malliavin Calculus in Mathematical Finance LMS–EPSRC Short Course, Oxford (403)

22

•

July11-NL.indd 22



Adam Kucharski

University of Cambridge

ter

her

on

ite

in

۱ts

ns.

to

gh

er

ns

n,

۱d,

je

newsletter@lms.ac.uk

No. 405 July 2011

18-28 Automorphic Forms and Galois Representations LMS-EPSRC Durham Symposium, Durham 19 Olga Taussky-Todd Lecture (B. Pelloni), ICIAM 2011, Vancouver, Canada (402) 19 LMS Northern Regional Meeting, Leeds (405)19-22 Homogeneous Structures Workshop, Leeds (404) 21-22 Twistors, Geometry and Physics Meeting, Oxford (404) 25-27 Aspects of Hyperbolicity in Geometry, Topology and Dynamics Conference, Warwick (404)25-29 Introductory Workshop on Inverse Problems, INI, Cambridge (400) 25-29 Stochastic Analysis UK-China Workshop, Loughborough (404) 28 - 3 Aug International Mathematics Competition, Blagoevgrad, Bulgaria (402) 29-31 IPMC 2011, Islamabad, Pakistan (402)

18-22 ICIAM 2011, Vancouver, Canada (400)

AUGUST 2011

1-5 EQUADIFF 2011, Loughborough (400)
1-5 Inverse Problems in Analysis and Geometry INI Workshop, Cambridge (400)
1-11 Mathematics of Data Assimilation LMS-EPSRC Durham Symposium, Durham
9-12 Optimum Design for Mixed Effects Non-Linear and Generalised Linear Models INI Workshop, Cambridge (399)
15-17 Galway Topology Colloquium, Belfast (403)

15-19 Design of Experiments in Healthcare INI Workshop, Cambridge (400)

17-19 Mathematical Models in Ecology and Evolution, Groningen, The Netherlands (403)
22-26 Analytic and Geometric Methods in Medical Imaging INI Workshop, Cambridge (400)

29 CALCO Young Researchers Workshop, Winchester (405)

29 - 1 Sep Algebra, Combinatorics, Dynamics and Applications, Queen's University, Belfast

29 - 2 Sep Theoretical Fluid Dynamics LMS–EPSRC Short Course, Heriot-Watt University (404) 30 - 2 Sep Designed Experiments: Recent Advances in Methods and Applications INI Workshop, Cambridge (399)
 30 - 2 Sep CALCO 2011, Winchester (405)

SEPTEMBER 2011

()

1-2 Harmonic Analysis and PDE Workshop, Madrid, Spain (405)

1-3 British Topology Meeting, Edinburgh (405)
1-3 British Logic Colloquium, Edinburgh (405)
5 Function Theory Meeting, London (405)
5-6 Preparing for Student Led Education CETL-MSOR Conference, Coventry (405)
5-7 Domains X Workshop, Swansea (405)
5-8 Partial Differential Equations and Spectral Theory Meeting, Imperial College London (404)

5-9 European Women in Mathematics General Meeting, Barcelona (396)
5-9 Accelerating Industrial Productivity via Deterministic Computer Experiments and Stochastic Simulation Experiments Workshop, INI, Cambridge (402)

5-9 Mathematical Imaging in Interaction with Biomedicine ICMS Workshop, Edinburgh (405)

5-9 ENUMATH Conference 2011, Leicester (404) 7-8 The Mathematics of Turbulent Diffusion Meeting, Sheffield (404)

8-9 Heilbronn Annual Conference, Bristol (404)

10-15 British Science Festival, Bradford (405) **11-17** Turning Dreams into Reality ICME, South Africa (388)

12-16 Networks: Stochastic Models for Populations and Epidemics ICMS Workshop, Edinburgh (405)

12-16 Perspectives in Algebraic Lie Theory Workshop, INI, Cambridge (403)

15-16 Induction Course for New Lecturers, Birmingham (405)

17 De Morgan House Open Day, London (405)

19-21 Mathematical & Theoretical Ecology Meeting, Essex (405)

19-23 Hyperbolic Conservation Laws and Related Analysis with Applications ICMS Workshop, Edinburgh (405) (•)

J.F. TWISDEN LMS member 1865–1914



۲

Rev John Francis Twisden, MA 11th Baronet of Bradbourne Professor of Mathematics, Royal Military Staff College

۲

۲