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2012 ELECTIONS TO COUNCIL AND NOMINATING COMMITTEE

This year, to facilitate the introduction of an electronic voting system, the LMS elections will be administered by the Electoral Reform Services (ERS). Members should now have received a communication from the ERS containing a paper ballot. This year, as an alternative to paper, members may cast a vote online by going to www.votebyinternet.com/LMS2012 and using the two part security code printed on their ballot paper or using the details in the e-mail sent by the ERS.

We hope that as many members as possible will cast their vote. If you have not received ballot material, please contact duncan.turton@lms.ac.uk, confirming the address to which you would like the material sent.

With respect to the election itself, there are two candidates for the post of General Secretary and two for Education Secretary. Sixteen candidates are proposed for seven vacan-

cies for Member-at-large. Six candidates have been proposed for three vacancies in the membership of Nominating Committee. The slates and candidate biographies for the election can be found on the LMS website at www.lms.ac.uk/content/lms-elections-2012.

For both electronic and postal voting the deadline for receipt of votes is **8 November 2012**. Members may still cast a vote in person at the AGM.

Members may like to note that a LMS Elections blog, moderated by the Scrutineers, can be found at <http://discussions.lms.ac.uk/elections2012/>.

Future Elections

Members are invited to make suggestions for future nominees for election to Council. These should be addressed to the Nominating Committee (nominations@lms.ac.uk). Members may also make direct nominations: details will be published in the May 2013 *Newsletter* or are available from Duncan Turton at the LMS (duncan.turton@lms.ac.uk).

Fiona Nixon
Executive Secretary

LMS ANNUAL DINNER

The 2012 LMS Annual Dinner will be held on Friday 16 November 2012 at 7.30 pm (for 8.00 pm start) at The Russell Hotel, London WC1. The LMS Annual Dinner follows the Society's Annual General Meeting at the Institute of Education, and the Society's wine reception at De Morgan House.

The cost for members and their guests to attend the LMS Annual Dinner is £45 per person, which is for a three-course meal and wine. Members wishing to attend should make cheques payable to 'London Mathematical Society' and send to: Leanne Marshall, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS. Please also indicate any dietary requirements. Payment should arrive by Monday 5 November 2012.

Any queries should be sent to leanne.marshall@lms.ac.uk.

ANNUAL GENERAL MEETING

The Annual General Meeting of the Society will be held at 3.00 pm on Friday 16 November 2012 in the Jeffrey Hall at the Institute of Education, 20 Bedford Way, London WC1H 0AL. The business shall be:

1. Elections to Council and Nominating Committee
2. Review of Society Activities 2011-2012
3. Report of the Treasurer
4. Resolutions:
 - Adoption of the Trustees Report for 2011/12
 - Appointment of Auditors
 - Approval of changes to By-laws
5. Presentation of certificates and the 2012 LMS prize winners

It is hoped that as many members as possible will be able to attend.

Fiona Nixon
Executive Secretary

LMS Newsletter

<http://newsletter.lms.ac.uk>

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)

Articles: please send articles to newsletter@lms.ac.uk

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

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

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

Reports Editor: Professor R.A. Wilson (r.a.wilson@qmul.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. Notices and advertisements are not accepted for events that occur in the first week of the publication month.

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Charity registration number: 252660.

LONDON MATHEMATICAL SOCIETY

ANNUAL GENERAL MEETING

16 November 2012

Jeffrey Hall, Institute of Education, 20 Bedford Way, London WC1H 0AL

(Nearest tube: Russell Square)

Programme:

3.00–3.30 Annual General Meeting

3.30–4.30 Charles Stuart (EPFL, Lausanne)

Bifurcation, asymptotic bifurcation and elliptic equations on \mathbb{R}^N

4.30–4.55 Tea

4.55–5.00 Announcement of Election Results

5.00–6.00 Bryce McLeod (Oxford)

Naylor Lecture

The wedge entry problem

The meeting will include the presentation of certificates to the 2012 LMS prize winners.

The meeting will be followed by a reception at De Morgan House.

The Society's Annual Dinner will be held in The Russell Hotel's Fitzroy Doll's Restaurant at 7.30 pm after the reception. Members and their guests are invited to attend the Annual Dinner. The cost to attend the dinner will be £45 per person. Those wishing to attend the dinner should contact Leanne Marshall (leanne.marshall@lms.ac.uk) before **8 November**.

There are limited funds available to contribute in part to the expenses of members of the Society or research students to attend the meeting. Requests for support, including an estimate of expenses, and any other queries about the AGM, should be sent to Elizabeth Fisher (meetings@lms.ac.uk).

LMS PRIZES 2013

Call for Nominations

The London Mathematical Society welcomes nominations for the 2013 prizes to recognise and celebrate the achievements in and contributions to all aspects of mathematics, including applied mathematics, mathematical physics and mathematical aspects of computer science. In 2013 the LMS Council expects to award:

- The **De Morgan Medal** is the Society's premier award for contributions to mathematics.
- The **Senior Whitehead Prize** for work in, influence on or service to mathematics, or recognition of lecturing gifts in the field of mathematics.
- The **Naylor Prize** and Lectureship for work in, and influence on, and contributions to applied mathematics and/or the applications of mathematics, and lecturing gifts.
- The **Berwick Prize** in recognition of an outstanding piece of mathematical research by an LMS member and actually published by the Society during the eight years ending on 31 December 2012.
- The **Whitehead Prizes** for work in and influence on mathematics.

For further information and nomination forms visit the LMS website (www.lms.ac.uk/content/nominations-lms-prizes) or contact Duncan Turton, Secretary to the Prizes Committee at the Society (tel: 020 7927 0801, email: prizes@lms.ac.uk).

The Prizes Committee is keen to increase the number of nominations it receives and, in particular, the number of nominations for women, which are disproportionately low each year. The prize regulations refer to the concept of 'academic age'— rather than date of birth — in order to take account more fully of broken career patterns.

The closing date for nominations is **Friday 18 January 2013**.

SET AWARDS 2012

This year's SET award in mathematics went to **Josephine French** (University of Oxford) for her research project entitled *Differential operators on base affine space*. Josephine received her award at the SET Awards Dinner and Presentation Ceremony held at Kensington Town Hall in London on 26 September.

The other two finalists for the Best Mathematics Student category were **Julian Brough** (University of Warwick) for his work on *Coset diagrams and their applications to finitely presented groups* and **Steven Charlton** (Durham University) for his work on *Primes of the form $x^2 + ny^2$* .

All deserve congratulations for their achievements.

More information about the awards is available at www.setawards.org/set/index.php.

OPEN HOUSE SUCCESS CONTINUES

Open House was once again a success for the LMS, with 230 people visiting De Morgan House on Sunday 23 September 2012.

Members of LMS staff along with Open House volunteers acted as guides on the day. There were regular tours of De Morgan House with information about the architecture of the building and the history of the LMS including a timeline presentation (with

CONFERENCE FACILITIES

De Morgan House offers 40% discount on room hire to all Mathematical charities and 20% to all not-for-profit organisations. Support the LMS by booking the next London event at De Morgan House.

Call us now on 020 7927 0800 or email roombookings@demorganhouse.co.uk to check availability, receive a quote or arrange a viewing of the venue.

a section on Alan Turing), along with a short Poincaré exhibition. The event was also an opportunity to distribute the LMS Annual Review, and also provide information leaflets on the LMS, including Membership, Grants, Events and Women in Mathematics.

Visitors were given a tour of the Reception area, Room 14 with its extensive views over Russell Square and the Members' Room on the second floor. The tour route also allowed visitors to view pictures of all the LMS Presidents.

As with 2011, the majority of people attending were regular visitors to Open House events and therefore particularly interested in the architecture. There was also an interest in the history of the Society and in mathematics in general with a wide range of ages and nationalities attending including several families. There were also some A-level students wishing to study mathematics at university and several visitors who had graduated with degrees in mathematics.



TONY POTTER

Dr Anthony J.B. Potter, who was elected a member of the London Mathematical Society on 18 January 1976, died on 3 April 2012, aged 64.

Rob Archbold writes: Tony Potter was a devoted member of the Mathematics Department in Aberdeen from 1972 until his retirement in 2011. He was a mathematical analyst and his research involved the application of functional analysis and topological methods to the study of non-linear differential equations. Particularly striking was his solo work on the application of Hilbert's projective metric to non-homogeneous operators. He also collaborated with a number of leading figures in the area, spending various sabbaticals at Rutgers and Sussex. His former colleague and collaborator, Michael Crabb, writes 'I owe Tony a great deal mathematically; it was his seminar, with Daciberg Goncalves, that got me interested in Fixed Point Theory and the Fuller index in particular'.

In his general approach to mathematics (both teaching and research) Tony was rigorous, meticulous and highly knowledgeable. His clarity in teaching was very much appreciated by his students. He taught throughout the Mathematics and Engineering Mathematics curriculum, was an Advisor of Studies for many years, a sub-warden in Johnston Hall and a dominant force in staff-student football matches of the 1970s. Tony had a cheerful disposition and was generous with his time, always ready to respond to requests for help from students or colleagues throughout the University. In recent times, he collaborated with David Heald (Aberdeen Business School) on mathematical modelling for the UK-Scotland Barnett formula.

Outside the University, Tony was a member of the Caledonian Cricket Club for several years. He batted with great panache rather than as a long term investment and he enjoyed hitting huge sixes. He was also a member of the Golf Clubs at Braemar and Newmachar.

Sadly, Tony was able to enjoy only a brief period of retirement in Edinburgh. He is deeply missed by his partner, Barbara, his family and his former colleagues.

GEOFFREY HORROCKS

Professor Geoffrey Horrocks, who was elected a member of the London Mathematical Society on 15 March 1956, died on 12 September 2012, aged 79.

Peter Newstead writes: Geoffrey Horrocks obtained his BA and PhD from Cambridge University. He subsequently spent two years as an Assistant Lecturer at King's College London, before moving to the University of Liverpool in 1958. He became a Reader in 1965 and was appointed Professor at the University of Newcastle upon Tyne in 1966, where he remained until his retirement in 1998.

Geoffrey was a pioneer in England of the 'new' algebraic geometry of Serre and Grothendieck, the main part of his work running from the late 1950s to the late 1970s. He studied in particular vector bundles on projective spaces. His publication list is relatively short, but all his papers have something significant to say and several are of seminal importance.

Geoffrey's most famous work is undoubtedly his joint paper of 1973 with David Mumford, in which a vector bundle of rank 2 on 4-dimensional projective space was constructed with very interesting geometrical properties; it is known as the Horrocks-Mumford bundle.

The theme of an early paper was to recover vector bundles from cohomological information and hence to reduce the construction of such bundles to linear algebra. This insight led in particular to the construction of instantons in the celebrated ADHM paper of 1977. Also in 1977 Wolf Barth used Geoffrey's methods to describe the moduli of vector bundles on the projective plane and this work was extended further in 1978 by Barth and Klaus Hulek. Perhaps the most significant advance was that of Alexander Beilinson, who extended Geoffrey's results by constructing a 'two-sided resolution' of any coherent sheaf on projective space.

In another early paper, Geoffrey obtained a condition for a projective module on a

polynomial ring to be free, which formed the basis of Daniel Quillen's proof that such modules are always free (Serre's conjecture).

Graeme Segal writes: It was only when I had the task of writing an obituary account of Dan Quillen's work that I realized how closely Quillen's famous proof of the Serre conjecture follows a paper of Geoffrey Horrocks written ten years earlier, and was led to reflect on how another of Geoffrey's few short papers contains the germ of the ADHM construction which ten years later started modern gauge theory as well as a whole area of current algebraic geometry. We cannot but feel sad that our Society never managed to give any recognition to one of the country's most original and influential mathematicians; but it is not hard to see how it came about. He was not one to call attention to his ideas, and he belonged to an age which saw no point in routine publications. More fundamentally, his example shows how long is the timescale over which mathematical interactions happen and how easy they are to overlook: his secure place in the history of mathematics was mediated – so I am told – by surprisingly few 'citations'.

UNDERGRADUATE ESSAY PRIZE

The British Society for the History of Mathematics is pleased to invite submissions for its 2012-13 Undergraduate Essay prize. The essay, which may be on any topic within the history of mathematics, should be between 2,000 to 2,500 words. The prize is open to any person who is enrolled as an undergraduate in a UK or Irish university during the academic year 2012-13. The value of the prize will be £100, plus free membership of the Society for a year.

Essays in submission for the prize should be sent via email attachment to Dr Mark McCartney (m.mccartney@ulster.ac.uk). Applicants should also give details of their place and year of study and the title of the degree programme on which they are enrolled.

The deadline for receipt of submissions is **1 May 2013**.

LONDON MATHEMATICAL SOCIETY NORTHERN REGIONAL MEETING

Monday 18 March 2013

Herschel Building, Newcastle University

Programme:

- | | |
|----------------|--|
| 2.00 pm | Opening of the meeting
Volodymyr Mazorchuk (Uppsala) |
| 3.15 pm | Ivan Smith (Cambridge) |
| 4.30 pm | Tea/Coffee |
| 5.15 pm | Bernhard Keller (Paris 7) |
| 6.30 pm | Reception and Buffet at The Penthouse |

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

To register, please visit www.mas.ncl.ac.uk/triangulations/index.php?p=6. Registration closes on **31 January 2013**.

The Society Meeting forms part of the workshop on Triangulations and Mutations from 18-22 March. For further details visit: www.mas.ncl.ac.uk/triangulations/index.php?p=6.

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 (peter.jorgensen@ncl.ac.uk).

ENHANCEMENT AND PARTNERSHIP

Clay Mathematics Institute

The Clay Mathematics Institute (CMI) invites proposals under its new programme *Enhancement and Partnership*. The aim is to enhance activities that are already planned, particularly by funding international participation. The programme is broadly defined, but subject to general principles:

- CMI funding will be used in accordance with the Institute's mission and its status as an operating foundation to enhance mathematical activities organised by or planned in partnership with other organisations.
- It will not be used to meet expenses that could be readily covered from local or national sources.
- All proposals will be judged by the CMI's Scientific Advisory Board.

Examples include:

- Funding a distinguished international speaker at a local or regional meeting.
- Partnership in the organisation of conferences and workshops.
- Funding a short visit by a distinguished mathematician to participate in a focused topical research programme at an institute or university.
- Funding international participation in summer schools (lecturers and students) or repeating a successful summer school in another country.
- Funding a special lecture at a summer school or during a research institute programme.
- Funding an extension of stay in the host country or neighbouring countries of a conference speaker.

Applications will only be received from institutions or from organisers of conferences, workshops, and summer schools. In particular the CMI will not consider applications under this programme from indi-

viduals for funding to attend conferences or to visit other institutions or to support their personal research in other ways.

Enquiries about eligibility should be sent to president@claymath.org. Applicants should set out in a brief letter a description of the planned activity, the way in which this could be enhanced by the CMI, the existing funding, the funds requested and the reason why they cannot be obtained from other local or national sources. Funds requested should not be out of proportion to those obtained from other sources. The CMI may request independent letters of support.

Applications should be sent to admin@claymath.org. There is no deadline, but the call will be closed when the current year's budget has been committed.

MATHEMATICS POLICY ROUND-UP

October 2012

RESEARCH

Liberal Democrats vote for above-inflation boost to research budget

The Liberal Democrat party voted in favour of a 15 year strategy to support science and research in the UK. The policy paper was proposed by Julian Huppert MP. The document calls for the science budget to be increased by 3% above inflation for 15 years and for bureaucracy to be cut to support industrial R&D. More information is available at <http://science-campaign.org.uk/?p=10919>.

SET Statistics - Science, engineering and technology indicators

'SET Statistics' is a summary of key science, engineering and technology indicators and is prepared by BIS in collaboration with the Office for National Statistics. It aims to:

- Provide a historical analysis of the government financing of science, engineering and technology (SET) activities

in the UK;

- describe the relationship between the funders and performers of research and development (R&D) in the UK (government, higher education, business enterprise, charities and overseas);
- report on business enterprise R&D expenditure;
- summarise key data on output and employment of science graduates and postgraduates, and other employment data; and
- show how the UK compares with other G7 countries.

More information is available at <http://tinyurl.com/6g59xxg>.

SCHOOLS AND COLLEGES

Reform of Key Stage 4 exams

On 17 September 2012, Education Secretary Michael Gove announced the coalition's Key Stage 4 exam reforms.

GCSE exams will be replaced by a new English Baccalaureate Certificate (EBacc). The majority of students will be expected to work towards the certificate, which will be given to those who obtain top grade passes in English, mathematics, the sciences, foreign languages and the humanities – history or geography. The first students will sit the new English, mathematics and science exams in the summer of 2017. Each subject will be delivered by a single exam board on a five-year contract. Other key elements include a move away from modular units as well as coursework and other forms of internal assessment. There will be one end of course examination. More information is available at <http://tinyurl.com/8rqmnh>.

ACME annual conference summary report

ACME held its annual conference at the Royal Society in July. The summary conference report – *Show your working: ensuring mathematics education policy is well-informed* – is now available at <http://tinyurl.com/8d7vajt>.

Help budding biologists develop their mathematics skills

The Biotechnology and Biological Sciences Research Council (BBSRC) has launched a new project to wed mathematics and bioscience in the classroom. To highlight the integral nature of mathematics to biology the BBSRC is calling on its research community to submit examples of mathematics in their research, which can then be developed into engaging classroom resources.

The new project aims to inspire young people to continue studying mathematics and make them aware of the need for mathematical skills in modern bioscience research in all areas, from bioinformatics and systems biology to medicine and biotechnology. More information will be available in due course.

OTHER

Reshuffle: Appointments of interest for STEM and education

David Cameron reshuffled his cabinet and junior ministerial teams in September.

Department for Business Innovation and Skills (BIS)

Both Vince Cable and David Willetts remain in their respective posts. Matthew Hancock becomes Parliamentary Under-Secretary of State for Skills (jointly with the Department for Education).

Department for Education

Michael Gove remains in post but there have been changes to the ministerial team.

David Laws: Minister of State (Schools) (jointly with the Cabinet Office)

Lord Hill of Oareford CBE: Parliamentary Under-Secretary of State (Schools)

Elizabeth Truss: Parliamentary Under-Secretary of State (Education and Childcare)

Government invests £10 million to help universities move to open access

A £10 million government investment was

announced by Universities and Science Minister David Willetts at the British Science Festival in Aberdeen in September.

'This will help universities with the transition to open access to publicly-funded research findings. The investment will enable a number of research-intensive UK institutions to kick-start the process of developing policies and set up funds to meet the costs of article processing charges (APCs). This is in line with the recommendations of the Finch report on open access, published in June'. More information is available at <http://tinyurl.com/cmcmvg6>.

Jobs and Growth

The Royal Academy of Engineering has published a report entitled, *Jobs and growth: the importance of engineering skills to the UK economy* <http://tinyurl.com/9958z8c>.

The report does highlight areas particularly associated with engineering but it also brings together evidence on the labour market returns from science, engineering, technology and mathematics (STEM) qualifications as well as examining the link between STEM education, training and qualifications and economic growth. Two of the principal findings:

- Independent models of future skills demand are predicting shortages of STEM qualified people for all occupational levels.
- Surveys of the supply of STEM qualified people through the UK education and training system when compared with models of demand suggest that demand for STEM skills will exceed supply into the foreseeable future.

Science and engineering careers for girls

Gender inequality in key Scottish industries will be addressed by a new £250,000 fund to encourage girls to widen their career options.

The funding will go towards Career-wise Scotland, a new initiative which will

step up action to encourage more girls to consider careers in science and engineering, an issue highlighted previously by the independent Science and Engineering Education Advisory Group. More information is available at <http://tinyurl.com/8n3wpga>.

Dr John Johnston
Mathematics Promotion Unit

ANALYSIS DAY

Analysis Day will be held on 7 January 2013 at the University of Bristol. The day will begin with coffee at 11 am, with the first talk at 11:30 am. The last talk will end at 5:15 pm, followed by dinner. The speakers are:

- David Preiss, FRS (Warwick) *Do we really know what Lebesgue null sets are?*
- Dorin Bucur (Universite de Savoie) *Isoperimetric inequalities and free discontinuity problems*
- Peter Topping (Warwick) *Ricci flow on noncompact surfaces*
- Lawrence C. Evans (UC Berkeley) *On the regularity problem for sup-norm variational problems*

For more information email Michiel van den Berg (m.vandenberg@bristol.ac.uk) or Isaac Chenchiah (Isaac.Chenchiah@bristol.ac.uk) or visit the website at <http://goo.gl/19H3j>.

MODEL THEORY CONFERENCE

The third annual *British Postgraduate Model Theory Conference* will be held at the University of Manchester from 16 to 18 January 2013. Model theory is a growing subject with many connections and applications to other areas of both pure and applied mathematics, including algebra, number theory, and integrable systems. In addition to talks and posters contributed by attendees the conference will feature invited talks from:

- Françoise Delon (Paris 7)
- Anand Pillay (Leeds)

- Mike Prest (Manchester)

There will also be a short course delivered by Alex Wilkie (Manchester). This conference is chiefly aimed at postgraduate students and postdocs working in model theory and related subject areas, but anybody interested in the subject is welcome.

For more information and to register visit the website at www.mims.manchester.ac.uk/events/workshops/index.html. The conference is supported by an LMS Postgraduate Research Conference Scheme 8 grant.

MODULAR FORMS, GEOMETRY AND PHYSICS

Modular Forms, Geometry and Physics Heilbronn Day will take place on 23 November 2012 at the ICMS, South College Street, Edinburgh. The lectures are intended for a general mathematical audience. Registration is from 9:30 - 10:00.

The speakers are:

- Katrin Wendland (Freiburg) *A constructive approach to Mathieu Moonshine*
- David Evans (Cardiff) *The search for the exotic - conformal field theories and subfactors*
- Eduard Looijenga (Utrecht) *Meromorphic automorphic forms in algebraic geometry*
- Samuel Grushevsky (Stony Brook) *Geometry of the moduli space of abelian varieties*
- Nils Scheithauer (Darmstadt) *From groups to Lie algebras and automorphic forms*

This meeting is sponsored by the Heilbronn Institute, and some financial support is available for graduate students to travel to it. Apply to the organiser Professor Gregory Sankaran (G.K.Sankaran@bath.ac.uk) for details. For further information visit the website at <http://people.bath.ac.uk/masgks/heilbronn.html>.

CAMBRIDGE

Mathematical Aspects of Fluid Mechanics

James C. Robinson,
University of Warwick

José L. Rodrigo,
University of Warwick

Witold Sadowski,
Uniwersytet Warszawski, Poland

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Operator Methods for Boundary Value Problems

Seppo Hassi,
University of Vaasa, Finland

Hendrik S. V. de Snoo,
Rijksuniversiteit Groningen, The Netherlands

Franciszek Hugon Szafraniec,
Jagiellonian University, Krakow

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GOOD PRACTICE SCHEME WORKSHOP

15 November 2012



Although nearly 40% of mathematical sciences graduates are women, only about 4% of UK mathematics professors are female. Relative to men, women are much less likely to go on to become academic mathematicians. Of course, this trend is not unique to mathematics, but the drop-off rate for women in mathematics is particularly high and this should be a concern to mathematics departments. The recent International Review of Mathematics highlighted concern about the low numbers of female mathematicians in the UK.

The LMS Women in Mathematics Committee, in collaboration with the Committee of Heads of Departments of Mathematical Sciences (HoDoMs), have set up a Good Practice Scheme specifically for mathematics departments, to help the community to recognise and celebrate good employment practice for women working in mathematics. The scheme compliments initiatives such as Athena SWAN.

A Good Practice Scheme workshop will be held on **Thursday 15 November 2012** to provide departments with knowledge and tools they can use to improve recruitment and retention of women in mathematics. This may include making an application for Athena SWAN status.

The workshop will be held at De Morgan House. Registration will be from 10.30 am and the workshop will run from 11.00 am – 3.15 pm. Participants will:

- hear about how the LMS Good Practice Scheme can support departments working towards recruiting and retaining more women in mathematics;
- hear from Athena SWAN about the process of applying for Bronze, Silver and Gold Award Department status;
- hear from departments already engaged in the process of applying for Athena SWAN status;
- make useful contacts with other departments active in promoting the careers of women in mathematics; and
- contribute to the discussion on what resources the LMS could usefully provide the community with to aid benchmarking.

Departments are welcome to send more than one participant. If you wish to register then please send the contact details of your participants to Duncan Turton at womeninmaths@lms.ac.uk.

Full details of the scheme and the workshop are available at www.lms.ac.uk/content/good-practice-scheme.

Cathy Hobbs – Chair, GPS Steering Group
Gwyneth Stallard – Chair, WiM Committee

BRITISH MATHEMATICAL COLLOQUIUM 2013

The 65th British Mathematical Colloquium will take place at the University of Sheffield from 25 to 28 March 2013.

Plenary speakers:

- John Baez (Riverside)
- Mikhail Kapranov (Yale)
- Ragni Piene (Oslo)
- Laurent Saloffe-Coste (Cornell)
- Guy Henniart (Paris)
- Thomas Schick (Göttingen)

Professor Baez's lecture will be a public lecture on the subject of mathematics and the environment and will be a Mathematics of Planet Earth 2013 event.

Morning speakers will include:

- Konstantin Ardakov
- Tim Dokchitser
- Lasse Rempe-Gillen
- June Barrow-Green
- Tony Dooley
- Gesine Reinert
- Tom Bridgeland
- Tom Leinster
- Stuart White
- Gavin Brown
- Zinaida Lykova

Afternoon workshops:

- Category Theory
- History of Mathematics
- K-Theory and Analysis
- Mathematical Higher Education
- Noncommutative Algebra and Representation Theory
- Number Theory
- Probability
- Topology

There will be opportunities for contributed talks either by individuals or, in workshop format, by groups with a common interest. Proposals for contributed talks or workshops are particularly welcome from postgraduate students.

Anyone interested should contact Eugenia Cheng (e.cheng@sheffield.ac.uk) or David Jordan (d.a.jordan@sheffield.ac.uk).

For further information visit the website at www.sheffield.ac.uk/maths/bmc2013.

The colloquium is supported by an LMS Conference grant.

UK-JAPAN WINTER SCHOOL 2013

The UK-Japan Winter Schools have been held annually since 1999. The aim of the Schools is to bring together Japanese and UK scientists, in particular young researchers and students, in a relaxing and stimulating atmosphere. The next UK-Japan Winter School Nonlinear Analysis will take place in London, UK, from 7 to 11 January 2013. It will be held at the Royal Academy of Engineering, under the auspices of King's College London.

There will be three short lecture courses plus a number of individual talks, including one by Craig Evans (University of California, Berkeley), who is supported by an LMS Scheme 2 grant held by Geoffrey Burton (Bath). The lecturers giving the short courses are:

- Gui-Qiang Chen (University of Oxford)
- Yoshikazu Giga (University of Tokyo)
- John Toland (University of Cambridge)

For further information visit the website www.mth.kcl.ac.uk/~berndt/conferences/UK-Japan13/ws2013home.html or contact one of the local or-

ganizers: Adrian Constantin (adrian.constantin@kcl.ac.uk) and Hisashi Okamoto (okamoto@kurims.kyoto-u.ac.jp).

The series of UK-Japan Winter Schools gratefully acknowledges support from the Daiwa Foundation, the Great Britain Sasakawa Foundation, King's College London and the Research Institute for Mathematical Sciences (Kyoto University).

VISIT OF CRAIG EVANS

Professor Lawrence Craig Evans (University of California, Berkeley) will visit the University of Bath, the University of Bristol and King's College London in the first half of January 2013. He will deliver the following lectures, to which all are welcome:

- Friday 4 January, *Nonconvex Hamilton-Jacobi PDE and differential games*, 2.00-3.30 pm, Wolfson Lecture Theatre (4W1.7), Department

of Mathematical Sciences, University of Bath. Contact: Geoffrey Burton (g.r.burton@bath.ac.uk).

- Monday 7 January, *On the regularity problem for sup-norm variational problems*, 4.15-5.15 pm, Venue Seminar Room, Howard House, University of Bristol. This lecture forms part of a Bristol *Analysis Day*, with three other lectures, given by Dorin Bucur, David Preiss and Peter Topping. Contact: Michiel van den Berg (m.vandenberg@bristol.ac.uk)
 - Friday 11 January, *Duality methods for viscosity solutions*, 12.15-1.15 pm, Al Qasimi Lecture Theatre, Royal Academy of Engineering, 3 Carlton House Terrace, London SW1Y 5DG. Contact: Eugene Shargorodsky (eugene.shargorodsky@kcl.ac.uk)
- The visit of Professor Evans is supported by an LMS Scheme 2 grant.

RECORDS OF PROCEEDINGS AT LMS MEETINGS

MIDLANDS REGIONAL MEETING

held on 3 September 2012 at Aberystwyth University as part of the Regional Workshop on *Quantum Probabilistic Symmetries*. Over 40 members and visitors were present for all or part of the meeting.

The meeting began at 1.45 pm with a welcome from the Vice-Chancellor, April McMahon.

The President, Dr Graeme Segal, was in the Chair and opened the meeting.

No members were elected to membership.

Four members signed the book and were admitted to the Society.

Professor John Gough introduced a lecture given by Professor Roland Speicher on *Quantum symmetries in free probability*.

Professor Gough then introduced a second lecture given by Professor Dan-Virgil Voiculescu entitled *Noncommutative probability aspects of trace-class commutators*.

After tea, Professor Gough introduced a lecture given by Professor Masaki Izumi on *Group actions on operator algebras*.

Professor Gough then introduced a second lecture given by Professor Matthias Christandl entitled *The quantum marginal problem*.

The President, Professor Segal, expressed the thanks of the Society to the local organisers for putting on such an interesting meeting.

Afterwards, a dinner was held at The MedRus Conference Centre.

ASPECTS OF TOPOLOGY in Geometry and Physics

17-19 December 2012, Oxford

Overview

The conference aims to gather leading researchers and to showcase topological ideas in a variety of current research developments. It marks and honours the 70th birthday of Graeme Segal. The conference will take place at the Mathematical Institute in Oxford. The dinner and conference accommodation will be at Merton College.

Speakers

- Michael Atiyah (University of Edinburgh)
- David Ben-Zvi (University of Texas at Austin)
- Kevin Costello (Northwestern University)
- Simon Donaldson* (Imperial College, London)
- Nigel Hitchin (Oxford University)
- Michael Hopkins (Harvard University)
- Soren Galatius (Stanford University)
- Maxim Kontsevich (IHES, Paris)
- Gregory Moore* (Rudgers University)
- Constantin Teleman (Berkeley University)

Schedule

On Monday afternoon Michael Hopkins (Harvard University) will give the Astor Lecture. This is followed by plenary talks on Tuesday and Wednesday. The conference dinner on Wednesday evening will be in honour of Graeme Segal. A detailed schedule with titles and abstracts will be available on the website.

Funding

This conference is sponsored through an EPSRC Platform Grant of the Mathematical Institute.

For further information visit the website at
<https://people.maths.ox.ac.uk/tillmann/ASPECTS.html>



Isaac Newton Institute for Mathematical Sciences

ANALYTICAL AND COMPUTATIONAL PATHS FROM MOLECULAR FOUNDATIONS TO CONTINUUM DESCRIPTIONS

18 – 22 March 2013

in association with the Newton Institute programme
The Mathematics of Liquid Crystals
(7 January – 5 July 2013)

Workshop Organisers: : Mike Allen (University of Warwick), Mikhail Osipov (University of Strathclyde), Valeriy Slastikov (University of Bristol) and Claudio Zannoni (Università Bologna).

Many of the phenomena exhibited by liquid crystals occur on the macroscopic or mesoscopic length scale. This makes the application of continuum theories, as exemplified by the orientational elasticity theory of Oseen and Frank, the order tensor descriptions of Landau and de Gennes, and the hydrodynamics of Ericksen, Leslie and Parodi, particularly fruitful. Along with the continuum theory go the ideas of defect structures and textures, which give liquid crystals a beautiful appearance, as well as involving some beautiful mathematical ideas. In recent years, however, interest in the molecular or particle-based description of liquid crystals has steadily increased. This is partly motivated by the ability of experiments to probe down to the nanoscale, partly by the explosion of interest in colloidal suspensions in which the constituent particles are of micron size, and partly from the desire to relate molecular structure and interactions to liquid crystalline properties and phase behaviour in a predictive way. Here, computer simulation plays a key role, especially in regimes where the assumptions of continuum theories are suspect. Finally, the upsurge in development of classical density functional theories of liquids, starting with Onsager's original treatment, has given another link between molecular shape and behaviour in bulk and in confined geometry.

This workshop will bring together experts in all the above fields, to compare and contrast the various approaches, and discuss topical problems in liquid crystals to which analytical methods, and computational techniques, may provide the solutions.

Further information and application forms are available from the website at www.newton.ac.uk/programmes/MLC/mlcw02.html.

Closing date of the receipt of applications is **30 November 2012**.

www.bristol.ac.uk

Heilbronn Research Fellows

The Department of Mathematics invites applications for one or more Research Fellowships in association with the Heilbronn Institute for Mathematical Research. You will divide your time equally between your own research and the research programme of the Heilbronn Institute.

Research areas of interest include but are not restricted to number theory and algebraic geometry, algebra, combinatorics, probability, quantum information and statistical data mining. We expect to appoint a number of Fellows across the full range of these areas, at least one in each area mentioned above.

The Fellowships will be for three years, with a preferred start date in October 2013, though another date may be possible by agreement.

Due to the nature of the Heilbronn Institute's work, you must satisfy vetting before appointment. UK resident UK nationals will normally be able to meet this condition: other potential applicants should consult the Director about their eligibility before applying. You may become a member of the USS pension scheme. Research expenses of at least £2,000 per annum will also be available.

There is a salary supplement of £3.5K pa, in recognition of the distinctive nature of these Fellowships. Payment of this supplement is conditional on a finished thesis having been accepted in final form, because we expect Heilbronn Fellows to hold PhDs before working at the Heilbronn Institute.

Enquiries about the fellowships may be addressed to Dr Oliver Johnson, School of Mathematics, telephone (+44)(0)117 928 8632, email: assoc-director-himr@bristol.ac.uk and enquiries about the work of the Heilbronn Institute may be addressed to the Director of the Institute, Professor Geoff Robinson, telephone (+44)(0)117 980 6303, email: G.R.Robinson@bristol.ac.uk

Applications should include a statement of proposed research (not more than one side of A4).

Please visit our website at www.bris.ac.uk/jobs enter the vacancy number ACAD100024 into the job search and follow the link to the on line application process.

Candidates should ask three referees to send references by the closing date (3 December 2012) to: Ms Chrystal Cherniwchan, School of Mathematics, University of Bristol, Bristol BS8 1TW UK Tel. (+44)(0)117 331 5260 Email: chrystal.cherniwchan@bristol.ac.uk (It is a candidate's own responsibility to ensure that the reference letters are received by the closing date (these letters may be sent by email).

Closing date: 3 December 2012.

MATHEMATICS AT THE BRITISH SCIENCE FESTIVAL 2012

Report

The British Science Festival is organized by the British Science Association (a.k.a. The British Association for the Advancement of Science) and has been running since 1831. The Mathematical Sciences Section of the Festival is a small committee which solicits ideas for events from the mathematical sciences community and aims to put on a programme covering a wide range of interests within the discipline, including statistics and aspects of computer science. Each year they choose a President from among those well-known for their ability to communicate to a wide audience; recent Presidents have included Simon Singh, David Spiegelhalter and Caroline Series, and this year's President is John Barrow, 2012 recipient of the Zeeman Medal for excellence in promotion of mathematics and author of many books on topics from sport to cosmology. For 2013 the emphasis will change with President Celia Hoyles, professor at the Institute of Education in London and director of the National Centre for Excellence in the Teaching of Mathematics.

This year it was held in Aberdeen from 4 to 9 September. There were six 'maths sciences events', nearly all given to capacity audiences. John Barrow's Presidential Lecture was on *Expanding Minds and Universes* (with an oblique reference to the Festival theme *Energising Minds*), a beautifully illustrated tour of solutions to Einstein's equations in general relativity, each one of which gives a model for the large-scale structure of the universe in time and space. Many of the 150 attending the talk stayed on for a wine and sandwiches reception sponsored by the Edinburgh Mathematical Society. John Barrow's books were on sale, too, at the reception, at a discount and with the author on hand to sign them.

The Highlands Group of the Royal Statistical Society put on an event *Fishy Figures*, examining the statistics of counting whales, monitoring toxins in shellfish and the relative appetite for cod, off the west coast of Scotland, between humans and seals (the seals win). The presenters

here were Charles Paxton, Clifton Gay and Rob Fryer and the session was organized by Malcolm Hall.

A distinct note – in fact several notes – of controversy were introduced by Kevin Houston and Rob Sturman from Leeds, assisted by Ben Sparks from Canford School, Dorset and his guitar.



Ben Sparks

After an introduction to 5, 7 and 12-note scales (and also a bewildering recorded performance from a 19-notes in the octave piano) there was a demonstration of the Auto-Tune software, which adjusts the imperfect pitch of singers or instruments to better approximate standard notes, and finally a dissection of the famous Chord which begins the Beatles' song *A Hard Day's Night*. Kevin claims to have used Fourier analysis to find the best approximation so far to the original notes being struck and there have subsequently been articles in many newspapers reporting, disputing or endorsing the claim. This is a rare example at the Festival of a truly new mathematical (or mathematically derived) discovery!

Marco Thiel of the Physics Department at the University of Aberdeen presented a talk and then a software demonstration on *How to Solve Crimes with Mathematics*, using image enhancement and restoration, statistical analysis, Voronoi diagrams, Benford's law and other techniques to detect or prevent crime. Robin Whitty of London's South Bank University described the life and work of Alan Turing (born in 1912) before inviting audience members to undergo a very informal 'Turing Test', posing three questions to him which were answered either by Robin himself or by a Chat-Room computer program. The questioners were then invited



Robin Whitty

to guess which it was, and were sometimes deceived into believing that the (often very quirky) answers came from the human (Robin) rather than from the Chat-Room robot. Last but by no means least, Matt Parker (who also introduced all the other events and oversaw the maths busking in the city centre) demonstrated his incomparable Stand-Up talents in the *Maths and Computing Magic Show*, to a large audience of children and adults, on the last evening of the Festival. There were video appearances too from his long-term collaborator at QMUL, Peter McOwan. Number magic, check digits, card tricks that (if properly done) are doomed to succeed, cutting a child volunteer in half with ropes and cutting a twisted strip of paper in half with scissors: the material sounds familiar but presentation is all, and this was as fresh as ever.

Besides these events in the main programme there were very popular schools events at TechFest-SetPoint which included the Liverpool Mathematical Society's *Funmaths Roadshow* organized by Sarah Chew from the University of Aberdeen.

The Mathematical Sciences Section of the Festival is now collecting ideas for the next Festival, from 7 to 12 September 2013 in Newcastle, and anyone with a proposal should contact me (pjgiblin@liv.ac.uk) or Tony Mann (a.mann@gre.ac.uk).

Peter Giblin
Recorder (i.e. Chair)
Mathematical Sciences Section

A version of this report will appear in the December *Mathematics Today*

TOPOLOGICAL SOLITONS

Report

A *Topological Solitons* conference to celebrate the 60th birthday of Professor Nick Manton took place at the Centre for Mathematical Sciences in Cambridge from 19 to 22 September 2012. Over sixty theoretical physicists and mathematicians – many of them former collaborators and students of Nick Manton – participated in the meeting. Nick Manton has fundamentally shaped the field of topological solitons through several pioneering contributions. Among them the discovery of the sphaleron, the introduction of the moduli space approximation to soliton dynamics, and work on Skyrmons. The subjects of fifteen talks and fourteen posters reflected the breadth of topics to which Nick has contributed. Sir Michael Atiyah, Joao Baptista and Nigel Hitchin spoke about problems in geometry, albeit not unrelated to physics. Martin Speight, Sergey Cherkis, Wojtek Zakrzewski, Stephen Krush, Richard Ward, Paul Sutcliffe and Peter Forgacs talked about classical aspects of various solitons models. Frans Klinkhamer, David Tong and Erick Weinberg covered the subject from the quantum field theory perspective. Gary Gibbons talked about applications in general relativity. The final lecture was given by Lord Martin Rees. His talk *From Mars to the Multiversity* reflected Nick's passion for astronomy. The meeting was supported by an LMS Conference grant. A further photograph from the conference can be found on the back cover of this *Newsletter*.

Maciej Dunajski
DAMTP, Cambridge



Nigel Hitchin and Nick Manton

NONLINEAR WAVES IN FLUIDS

Report

An international conference on *Nonlinear Waves in Fluids* took place at Loughborough University from 12 to 14 September 2012, organised jointly by Loughborough University and University College London. The conference was dedicated to Professor Roger Grimshaw (Loughborough University) on the occasion of his retirement. It was supported by an LMS Conference grant, as well as the funds from the Office of Naval Research Global, Institute of Mathematics and its Applications, Marie Curie MULTIFLOW Network and Loughborough University. About 60 participants from Australia, Brazil, Canada, China, Cyprus, France, Indonesia, Ireland, Italy, Malaysia, Netherlands, Russia, UK and USA attended the meeting. The conference created a unique opportunity for a fruitful exchange of ideas among the leading international and UK researchers and early career researchers, whilst simultaneously celebrating Professor Grimshaw's contributions in this area.

Historically, nonlinear waves in fluids was and continues to be an important research area for the UK. Professor Roger Grimshaw is one of the world leading authorities on nonlinear waves in geophysical fluid dynamics, the area providing constant influx of new ideas to many branches of modern mathematics, from the analysis of nonlinear partial differential equations and spectral problems related to waves stability to integrable systems and Hamiltonian flows. Over the course of a long and distinguished career, Professor Grimshaw has made fundamental contributions to the mathematical theory of nonlinear waves in fluids, with important applications in geophysical fluid dynamics, theoretical oceanography and dynamical meteorology. Professor Grimshaw's academic and professional merit has been recognised by many awards, appointments, and elections to significant bodies. Professor

Grimshaw will continue his active research, as well as teaching of the postgraduate MAGIC course on *Nonlinear Waves*, staying in Loughborough as a Visiting Professor.

The programme of the conference consisted of nine invited lectures and a large number of contributed talks, running from morning to late afternoon on each day of the meeting, with no parallel sessions. The meeting was devoted to various aspects of nonlinear waves in fluids, including water waves, internal waves, wave - current interactions, effects of variable environment and rotation, resonant wave interactions, wave instabilities, wave turbulence, etc., with applications in established areas such as geophysical fluid dynamics and new areas such as thin films and complex fluids. The invited lectures were given by Professors Mark Ablowitz (University of Colorado, USA), Thomas Bridges (University of Surrey, UK), Karl Helfrich (Woods Hole Oceanographic Institution, USA), Nalini Joshi (University of Sydney, Australia), Alfred Osborne (Università di Torino, Italy), Dmitry Pelinovsky (McMaster University, Canada), Efim Pelinovsky (Institute of Applied Physics, Russia), Victor Shrira (Keele University, UK) and Vladimir Zeitlin (École Normale Supérieure, France). An experimental demonstration of the beach dynamics by breaking waves was shown by Professor Onno Bokhove (Leeds University, UK and University of Twente, The Netherlands). Early career researchers were given an opportunity to present their work alongside and in the same format as the leading experts. The programme and abstracts of the conference are available at www-staff.lboro.ac.uk/%7Emakk/NWF.html.

The organisers would like to thank all speakers for their very interesting presentations and the London Mathematical Society for the generous support of the conference. Photographs from the conference can be found on the back cover of this *Newsletter*.

Karima Khusnutdinova
Loughborough University

REVIEWS

The Mathematical Writings of Évariste Galois by Peter M. Neumann, Heritage of European Mathematics, European Mathematical Society, 2011, 421 pp, €78, ISBN 978-3-03719-104-0.

In this beautifully presented book, Peter Neumann has given the first systematic English translation of Galois' mathematical writings. Such is the fame of Galois that it is perhaps surprising that only around one third of his writings had previously been available in English. Were it simply a translation, this book would therefore already be useful. But it is much more than that.

Dr Neumann has produced a new French transcription, working with existing transcriptions but checking every word against original publications and manuscripts. This transcription, which renders as accurately as possible all original crossings-out, alterations and so on, is reproduced on the left-hand pages. On the right-hand pages is Dr Neumann's English translation. The bulk of the book is devoted to transcription and translation of the vast majority of Galois' mathematical writings. A few fragmentary calculations are omitted, along with some schoolwork and one letter which is rather philosophical than mathematical. Apart from these items, we have essentially the 'complete works'.

There are some introductory pages containing a very brief biography of Galois, describing how the manuscript was prepared and the various previous transcriptions. There is also some discussion of the translation, including problematic words such as *permutation*, *substitution*, and *primitif* – what my French teacher would have called 'faux amis' because the obvious translation does not necessarily capture what is meant. Brief notes accompany the translation of each document; the emphasis here is on the physical text rather than mathematical commentary. The book ends with a useful bibliography.

Heritage of European Mathematics

Peter M. Neumann

The mathematical writings of Évariste Galois

European Mathematical Society

This is not a biography or a 'popular' mathematics history; it is not a book to read cover-to-cover. However it will be of interest to many mathematicians and an indispensable reference for historians of mathematics working in this area. It has clearly been prepared with meticulous care and (though I am far from an expert) it seems to me a very fine translation. Dr Neumann expresses the hope that the availability of an English translation may help to dispel some of the myths perpetuated about Galois: that he invented group theory the night before the fatal duel, that he knew about the simplicity of alternating groups, and so on. I think it will. While in theory my French is possibly good enough to study a transcription, the presentation of transcription and translation side by side in this excellent work is what has actually made me read Galois at last. I suspect I may not be alone in this!

Every mathematics library should have a copy of this book, and every mathematician interested in the history of the subject will find it an illuminating text.

Sarah Hart
Birkbeck University

Sophie's Diary: A Mathematical Novel by Dora Musielak, Cambridge University Press, 2012, 292 pp, £45, ISBN: 978-0-8838-5577-5.

Sophie's Diary is a mathematical novel inspired by what is known of the life of Sophie Germain. The author, Dora Musielak, gives her perspective on how a young girl in revolution-era Paris could have fought society and circumstance to teach herself the mathematics required to contribute both to elasticity theory and to the proof of Fermat's last theorem.

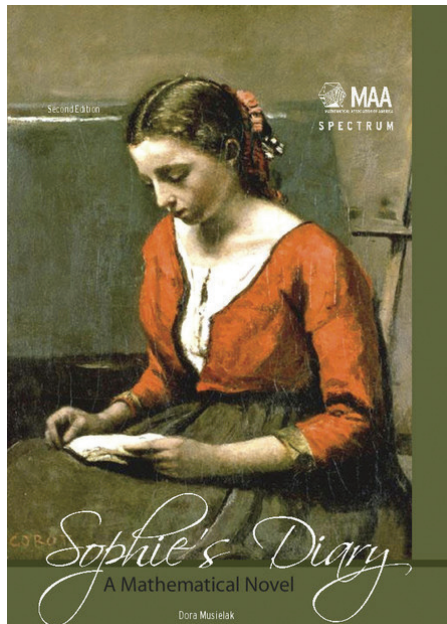
The story begins in Paris on Sophie's 13th birthday just a few months before the fall of the Bastille. Through regular diary entries we learn about Sophie's blossoming interest in mathematics, beginning with her discovery of Montucla's *Histoire des mathématiques*. The fictional Sophie is fascinated by the stories of Archimedes, Pythagorus, Hypatia and others. She becomes deeply curious about numbers and equation solving; reading and practising as much as she can despite opposition from her family. Meanwhile Paris is becoming

a brutal and volatile city, encouraging Sophie to dig deeper into her books.

The author creates for us diary entries spanning five years. During this time, Sophie succeeds in acquiring texts due to Euclid, Euler, Fermat and Newton, whilst studying through the night to deepen her understanding of prime numbers, imaginary numbers, calculus, as well as solving riddles and pondering the paradoxical. Through her diary entries, Sophie experiments and solves equations; explaining her discoveries and curiosities. We read of Sophie's frustrations with her society, that she must study in secret and will likely never be admitted to the university, but also we read of her furious determination to understand as much mathematics as possible and to prove herself as good as any man. The young Sophie describes the devastating destruction of her beloved city, the execution of her king and queen, the demolition of the church and the fear and poverty suffered by the whole population. Meanwhile she dreams of understanding the prime numbers, proving Fermat's last theorem and attending lectures by the famous Lagrange.

The author creates for us a shy, sweet and captivating Sophie; endlessly determined to understand the world around her. Musielak succeeds in painting a dark picture of life in Paris at the end of the 18th century; conveying the terror and injustice of the period, the frustrating political dynamic and the hypocrisy of the society. She includes also much mathematical exposition as Sophie explains her findings in her diary. The mathematics is sensibly presented for today's reader with modern notation and terminology. The novel is perfectly charming and although the diary entries are entirely fictitious, the life of Sophie Germain deserves our curiosity and the story seems a fair augmentation of what little is documented of Sophie Germain's childhood.

Sarah Astill
Bristol University



CALENDAR OF EVENTS

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 is given on the Society's website (www.lms.ac.uk/content/calendar). Please send updates and corrections to calendar@lms.ac.uk.

NOVEMBER 2012

- 6 *The Mathematical Objection*, BCS-FACS Evening Seminar, London (418)
- 6 *Polynomials and their Roots*, Gresham College London
- 7-9 Mathematical Techniques for Quantum Physics Postgraduate Student Conference, Nottingham (417)
- 15 *Good Practice Scheme Workshop*, London (419)
- 16 *LMS AGM*, London (419)
- 23 Modular Forms, Geometry and Physics Heilbronn Day, ICMS, Edinburgh (419)
- 24 Early Career Mathematicians' Autumn Conference, University of Greenwich (416)
- 26-30 Algebraic Geometry, Modular Forms and Applications to Physics ICMS Workshop, Edinburgh (415)

DECEMBER 2012

- 3-7 Quantized Flux in Tightly Knotted and Linked Systems INI Workshop, Cambridge (416)
- 11 *From One to Many Geometries*, Gresham College London
- 15-17 Thomas Harriot Seminar, St Chad's College, Durham (412)
- 17-19 Aspects of Topology in Geometry and Physics, Oxford (419)
- 17-20 Mathematics in Signal Processing 9th IMA International Conference, Austin Court, Birmingham (416)

JANUARY 2013

- 7 Analysis Day, Bristol (419)
- 7-11 Nonlinear Analysis UK-Japan Winter School, London (419)
- 7-11 Symmetry, Bifurcation and Order Parameters INI Workshop, Cambridge (418)

- 14-17 Non-equilibrium Statistical Mechanics and the Theory of Extreme Events in Earth Science, Reading
- 16-18 British Postgraduate Model Theory Conference, Manchester (419)
- 22 *The Queen of Mathematics*, Gresham College London

FEBRUARY 2013

- 19 *Are Averages Typical?* Gresham College, London

MARCH 2013

- 1 *LMS Mary Cartwright Lecture*, London
- 18 *LMS Northern Regional Meeting*, Newcastle (419)
- 18-22 Analytical and Computational Paths from Molecular Foundations to Continuum Descriptions Workshop, INI Cambridge (419)
- 18-23 Workshop on Triangulations and Mutations, Newcastle (419)
- 19 *Modelling the World*, Gresham College London
- 25-27 Quantitative Modelling in the Management of Health and Social Care 7th IMA Conference, Central London (416)
- 25-28 British Mathematical Colloquium, Sheffield (419)

APRIL 2013

- 2-5 Higher Structure 2013: Operads and Deformation Theory INI Conference, Cambridge (418)
- 8-9 Mathematics in Finance IMA Conference, Heriot-Watt University (416)
- 9-11 Large Deviations and Asymptotic Methods in Finance, Imperial College London
- 18-19 *Women in Maths Day*, Cambridge

JUNE 2013

- 20-21 High-Dimensional Inference with Applications, Kent

JULY 2013

- 1-2 Bifurcation Theory, Numerical Linear Algebra and Applications, Bath
- 1-4 Dense Granular Flows 2nd IMA Conference, INI, Cambridge (416)
- 5 *LMS Meeting*, London

LMS-FUNDED MEETINGS

Topological Solutions Conference held at the University of Cambridge from 19 to 22 September 2012 (report on page 19)



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Nonlinear Waves in Fluids Conference held at Loughborough University from 12 to 14 September 2012 (report on page 20)



Mark Ablowitz with two PhD students,
Amirah Azmi (left) and Azwani Alias (right)



Roger Grimshaw and Efim Pelinovsky