THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 314 **April 2003**

FORTHCOMING SOCIETY MEETINGS

Wednesday 14 May 2003 – Coventry
Midlands Regional Meeting
Uncertainty Modelling
Friday 20 June 2003 – London
J.C. Rickard, M.J. Taylor (Fröhlich Lecture)
Tuesday 22 July 2003 – Edinburgh
Hodge Centenary Meeting – Joint Meeting with the Edinburgh Mathematical Society
24 October 2004 - Southampton
LMS South West and South Wales Regional Meeting
Nonlinear Dynamics
21 November 200 - London
L.C.G. Rogers, M.H.A. Davis (Naylor Lecture)

RETREAT DIARY

The new Council went on retreat for the weekend 7-9 March, deep in the fens, at St John's College, Cambridge. Any plans we might have had to get further from the rest of humanity were scuppered by the President's lecturing obligations in a university which still has lectures at 9.00 on Saturdays, but of course the venue was beautiful, with the Backs covered with daffodils. And the hospitality provided by St John's was superb.

The purpose of the retreat, which has now become a regular event at the start of each President's term of office, is to give Council some time to discuss issues at length and form long-term plans. The general theme of this retreat was 'Threats to the UK mathematics base'. Three sessions, on Friday evening, Saturday morning, and Saturday afternoon, examined each of three areas 'Schools and teachers', 'University departments' and 'Research'. On Sunday morning, each of the subjects was revisited, and then at a final session, all the strands were brought together, and the financial implications of the proposals were thrashed out. We worked long and hard and are still recovering from the effort. So much happened that it has taken the combined efforts of two of us to log the weekend for the rest of you.

Friday evening's session concerned the threat at the bottom of our food chain posed by the related problems of the decline - in both numbers and quality - of mathematics students entering university and the perennial and acute shortage of mathematics teachers.

The session was chaired by Amanda Chetwynd and began with Brian Stewart presenting the A-level figures. These showed a drop in numbers of students going on from school to do Mathematics at university, relatively small, but this against an overall increase in A-level candidates. Nevertheless, the situation could be a lot worse and numbers are holding up particularly for students going to the Russell group of universities. The significant increase in the proportion of A's (from 18.4% in 1992 to 29.8% in 2001) is more worrying as there is some evidence, probably in line with the experience of most members, which suggests pretty strongly that standards have dropped steadily.

The villains include modularisation, which has fragmented the treatment of the subject, the current climate of control, which has led to an over-prescription and emphasis on details in the syllabus, and a prevailing ideological belief that all subjects can be taught and examined in the same way, or (in the jargon) are 'interchangeable'. This last philosophy is clearly at

odds with the cumulative nature of mathematics (similarly for the study of languages, which is also experiencing decline and teacher shortage). These problems are aggravated by league tables and funding regimes which favour 'safety'. All this works against more exciting and challenging topics and has led to a dilution of A-level mathematics. Indeed there is evidence that the best students are becoming bored with the mathematics syllabus and choosing other subjects. However, moderate students benefit and so we are on the horns of a constantly recurring dilemma: the needs of the few against those of the majority.

The widespread negative perception of mathematics, ascribed to a culture at best indifferent and at worst antagonistic to mathematics and science, is a key factor. It puts off good students and so lessens the number who go on to study mathematics at university and hence reduces supply of good teachers, and so we are in a vicious circle. To break it, school mathematics has to be 'enriched' and the shortage of teachers ended. These would require reviving the spirits and enthusiasm of the teachers and possibly improving the syllabus (though this is not straightforward and teachers are tired of continued changes).

This theme of decline was taken up by our guest Celia Hoyles, a member of the Advisory Committee on Mathematical Education (ACME). The dire and perennial shortage of mathematics teachers and the problems with A-levels have been recognised by government, and there has been a recently published White Paper on `The Future of Higher Education'. ACME has been thinking about remedies. Celia reiterated that mathematics is ‘special’, and widely needed. We heard about the state of mathematics teaching in state secondary schools - although reliable and robust data are not readily available, it appears that England is short of 3500 qualified mathematics teachers, and 20% of A-level mathematics teachers have ‘no qualifications’ to teach mathematics (the figure is higher in many urban areas). Various ‘radical’ remedies were proposed. To raise the standard and morale of mathematics teachers, ACME has recommended a serious commitment to continuing professional development (CPD). We were told that teachers do not feel part of the mathematical community and that involvement with local universities could be very beneficial.

Another idea is to replace the A-levels with a baccalaureate-type examination in which mathematics is compulsory for at least the more prestigious qualification. However, as seems to be the case with every proposed solution, there are serious difficulties. The mathematics (and sciences and language) teachers are just not out there; and the usual 4-year baccalaureate course would conflict with the current structure of British school education in which there is a break at GCSE with many students going on to 6th form college. There would also be substantial financial implications for bodies involved in the current examinations set up. The upshot is that a baccalaureate-type course is a long way off as yet, even assuming consistency in government policy.

The message that maths is special and important has to be got across to school pupils before their minds are made up. A crude economic argument contained in the White Paper that mathematics is close to law in terms of 'earning premium' could be exploited, but it was felt to be more important to bring about a 'climate change' in attitudes towards mathematics. We already have plans, working within CMS, to produce material publicising the exciting career opportunities that mathematics offers today.

The second session, on University Departments, was chaired by Nick Woodhouse. Papers from our guest Charles Goldie (chair of HoDoMS) and Brian Stewart presented some data on undergraduate numbers. This revealed the dominance of the Russell group of universities; over the last four years, total undergraduate numbers in the Russell group have grown steadily to about 50% of all undergraduates, while those for the 1994 and the post-1992 groups have declined (by about 10% and 30% respectively). The relatively moderate monotonicity of the overall figures hides huge fluctuations (in some cases exceeding 50%) and the differing fates of departments. According to a HoDoMS survey, about 30 departments, including some well established ones from the Russell, 1994 and other groups,

are under threats ranging from contraction to imminent closure. The problems with mathematics in schools bear heavily on this. First, the reduction of student numbers leads to university funding formulae 'debt', now all too common. Secondly, extra time and effort are required to make up the students' deficiencies. Various factors in some universities have led to serious consequences for service teaching. The emergence of 'light-weight' engineering courses, purged of serious mathematics, was a worrying trend.

The question of whether the argument should be pushed for funding mathematics as a lab-based, rather than a semi-lab-based, subject was raised. But it was generally considered that this argument did not really hold water. The real truth is that mathematics teaching is indeed expensive in resources but that the main resource is actually highly trained humans. Mathematics cannot be learned without doing, and students require clinics staffed by research active mathematicians; teaching cannot be separated from research. It was suggested that the Society might codify these principles by formulating some norms for the teaching of mathematics. The establishment of such a set of norms might also help to protect departments under threat.

Ways of raising student numbers, and particularly teachers, within a widening participation were mooted; from golden hellos, fees remission and bursaries to undergraduate and postgraduate teaching qualifications in partnership with local schools.

Peter Cooper spoke of the need for a more active proselytisation of the case for mathematics. We need to find a common stance with other mathematics bodies, and to join with other core subjects in pressing for national strategies and goals. We need to use the media; a one-day meeting was suggested. It was suggested that the Society should set up a Mathematics Promotion Unit, to gather and process data (making use of HESA), to produce publicity material, and to organise targeted lobbying and meetings. Co-ordination with the IMA and RSS is crucial but should not prevent us from acting alone where appropriate.

By the end of that session we were ready for lunch, which was provided for us in the Wordsworth room. Peter Goddard told us that Wordsworth had been well prepared by Hawkeshead Grammar for his study of mathematics in Cambridge. So well prepared that he needed to do no work in his first year. But that strategy worked less well in his second year, and his mathematical career came to an abrupt end. Maybe that is no bad thing.

The third session, on research in Mathematics, was chaired by Stephen Huggett and covered more all too familiar territory.

Tony Scholl and Alice Rogers spoke on old and new threats to research. People are a vital resource, and the pressures especially on young researchers are increasing. We discussed the opportunities available to new PhDs. Are there enough? People cannot be expected to remain in academia when there is no real prospect of permanent appointments for them. But maybe UK PhDs are suffering from a training which is too short and therefore too narrow compared with other Europeans; hence they are not competitive in the job market. The International Review of Chemistry recommended a four-year PhD; it was suggested that the Society should flag the length of mathematics PhDs as a topic to be considered by the International Review of Mathematics.

Ursula Martin and Martin Bridson spoke about their experience as members of EPSRC's Mathematics Strategic Advisory Team, which met recently outside Birmingham, and helped to produce a strategy document. EPSRC needs to compete with PPARC and BBSRC in a comprehensive spending review. Interdisciplinary themes such as risk, post-genomics, complex systems, QIP, novel architectures, and e-Science are becoming very important; it is by hooking into these schemes that EPSRC is able to attract money. We need to argue that core science is vital input.

Chris Lance spoke about publishing. In the medium term, the greatest danger to our publications is the possibility of the breakdown of the system where libraries pay substantial subscriptions for journals. Eventually alternatives such as levying page charges might have to be considered. Following the acquisition of *Compositio*, the Society's publications activities are in a stage of consolidation or incremental growth. It is hoped to extend the scope of the journals to applied mathematics.

This long and gruelling session was followed by dinner in the Master's Lodge, where the discussions continued over the port and music.

On Sunday morning, with the glorious Spring sun shining on the Backs, we met to draw all the strands together. From the first session we concluded that it is time to produce the promised careers material to promote mathematics, that the possibility of a baccalaureate structure and its implications for mathematics must be seriously investigated, and that the Society must support the efforts of ACME. Teachers need support. Mathematics departments should be encouraged to participate in subject-specific CPD, while the Society should investigate ways to involve schoolteachers in the mathematical community. Tariffs for admission to mathematics courses, based on points, appeared to endorse 'interchangeability', and should be challenged.

Out of the second session the Mathematics Promotion Unit was growing in importance, with its roles of data gathering, influencing government, the public, and the media. We need to make the case that teaching mathematics is as onerous as teaching lab-based subjects, that university mathematics teachers need to be active in research, that mathematics teaching for other disciplines must be coherent, and cannot be taught simply within those other disciplines. We need to consider the advantages and disadvantages of building up a definition of 'accepted norms' in the teaching of mathematics. Finally we need to consider various schemes of incentives for the study of mathematics.

Out of the third session, the length of a mathematics PhD arose as a topic for consideration by the International Review of Mathematics. We need also to be ready to respond quickly at the next consultation of the HEFCE Review of Research Assessment. An early meeting with Annette Bramley (Alasdair Rose's successor as Mathematics Programme Manager at EPSRC) is being planned. In mathematics small can be beautiful, and grant income is not the only performance indicator. The success of interdisciplinary work depends on and must not compromise the continuing funding of core mathematics. We need to give constant support to the universities and not just react to crises: we need to defend the core of the subject.

Maurice Dodson and Sarah Rees

INTERNATIONAL REVIEW OF MATHEMATICS

In the March issue of the *Newsletter* we reported on the establishment of the International Review and promised that we would report monthly on its progress.

The remit of the Review has been defined as follows:

> *To assess the standing and potential of mathematics research in UK universities and comparable institutions, in comparison with international work in the field. The Review should look at the width and quality of all aspects of research in mathematics and its applications, encompassing all of pure and applied mathematics, and statistics.*

After discussion at the Steering Group and with EPSRC, it has been agreed that Operational Research will not form a part of this Review, but will be addressed separately.

We are delighted that Jean-Pierre Bourguignon, Director of the IHES in France and a former President of the European Mathematical Society, has agreed to chair the International Panel.

His standing with the mathematical community and his experience will be enormously valuable to the Review. At the meeting of the Steering Group earlier in March, names of other members of the International Panel were discussed, drawing on suggestions from the mathematical societies and the chairman of the Panel, and also the way in which the broad areas of mathematics will be represented on the Panel. It is hoped to be able to confirm soon the names of the Panel and the dates of its visit to the UK.

As part of the process of disseminating information on the Review, and receiving comments from the mathematical community on it, three presentations will be taking place in the next few months. There will be presentations at both the BMC and BAMC on 8 April. Martin Taylor will be speaking at the former at 1.30 p.m.; Tim Pedley will be speaking at BAMC that evening. In addition, Bernard Silverman, the RSS representative on the Steering Group, will be speaking to the Committee of Professors of Statistics on 2 May.

At a practical level, it is expected that a part-time Scientific Secretary to support the Review, based at De Morgan House, will be appointed in the near future.

Members wishing to comment on the Review may do so via Nigel Hitchin (hitchin@maths.ox.ac.uk), who is the Society's representative on the Steering Group, or via the Executive Secretary, Peter Cooper (cooper@lms.ac.uk).

NEW EPSRC MATHEMATICS PROGRAMME MANAGER

The EPSRC has announced that Dr Annette Bramley has succeeded Dr Alasdair Rose as EPSRC Mathematics Programme Manager.

Annette has a DPhil in Materials from the University of Oxford and spent 18 months as a post-doctoral research assistant at the University of Cambridge. Since joining EPSRC, Annette has worked in the Chemistry and Engineering Programmes. She has also been involved in EPSRC's efforts to improve its interactions with the users of research, last year undertaking a placement at Thames Water. Annette has just returned to work after the birth of her first child, Daniel, in September. She is sure that International Review will highlight the excellent mathematics research being carried out in the UK and is looking forward to working with the community to build on the success that the Mathematics Programme has enjoyed in recent years.

Alasdair has moved to take responsibility for the cross-Research Councils' Basic Technology Programme. We wish Alasdair well in his new post, and thank him for his strong support of mathematics over many years.

CATHERINE SMALLWOOD

Ms Catherine Smallwood, who was elected a member of the London Mathematical Society on 11 March 1977, died on 14 February 2003, aged 55. Cathy Smallwood was Director of the BSc Modular Degree at the University of North London. She was strongly committed to widening access and to equal opportunities. Her main teaching interests were in real analysis, discrete mathematics and finite automata.

DERICK ATKINSON

Professor F.V. 'Derick' Atkinson, who was elected a member of the London Mathematical Society on 17 June 1983, died on 13 November 2002, aged 86. He obtained a First Class Honours Degree in Mathematics and Russian in 1937 and a DPhil under E.C. Titchmarsh two years later. After military service he held academic posts in Nigeria and Australia before moving to Toronto in 1960. His research included key contributions to understanding the Riemann Zeta function, and to eigenfunction expansions.

PETER SLODOWY

Professor Peter J. Slodowy, who was elected a member of the London Mathematical Society on 8 May 1987, died on 19 November 2002, aged 54. Peter Slodowy was appointed to a 'new blood' lectureship in Liverpool in January 1986 and remained there until September 1988. While formally still at Liverpool, he held a chair in Wuppertal before receiving an offer for an associate professorship at the University of Stuttgart. He moved to Hamburg as a full professor in 1990, declining two offers elsewhere. Working in the general area of singularity theory, he spent several periods abroad, including a recent year at Kitami Institute of Technology, Hokkaido, Japan. He took early retirement in 2001.

VISIT OF MS G. FILIPUK

Ms Galina Filipuk (Belarussian State University) is visiting the University of Kent at Canterbury until 18 April. This visit is supported by an LMS Scheme 5 grant. For further information contact Professor Peter Clarkson, Institute of Mathematics & Statistics, University of Kent at Canterbury (tel: 01227-827781, fax: 01277 827932, email: P.A. Clarkson@ukc.ac.uk).

VISIT OF DR D. YAKUBOVICH

Dr Dmitry Yakubovich (Universidad Autónoma de Madrid) will be visiting England under LMS Scheme 2 between 12 – 21 May. He will give seminars in functional analysis in Leeds (13 May), Newcastle (16 May) and Oxford (20 May). For further details please contact Professor J.R. Partington (j.r.partingston@leeds.ac.uk).

VISIT OF PROFESSOR L. SHAIKHET

Professor Leonid Shaikhet (Donetsk State Academy of Management, Ukraine) will visit the UK from 3 - 17 May, supported by an LMS Scheme 2 grant. He will give lectures at Caledonian University in Glasgow, Edinburgh University and Strathclyde University. For further information please contact Professor X. Mao, Department of Statistics and Modelling Science, University of Strathclyde, Glasgow G1 1XH (xuerong@stams.strath.ac.uk).

THE ABEL PRIZE

The Niels Henrik Abel Memorial Fund was established on 1 January 2002, with the main object to award an international prize for outstanding scientific work in the field of mathematics. The Prize will be approximately NOK 6 million (€750,000).

The Norwegian Academy has announced that the first winner of the Prize will be announced in Oslo on 3 April. It will be presented by the King of Norway in the University Aula in Oslo on 3 June at 14.00. A programme of events of which this is the centrepiece is being arranged for 2-4 June. A website is being prepared (www.dnva.no/eng/abel.html), and full information about the Prize and the winner will be posted there.

SECANTS

SECANTS (South of England Computational and Algorithmic Number Theory Seminars) will hold its twentieth meeting at Royal Holloway, University of London, on Saturday 5 April 2003. The speakers will be Bryan Birch (Oxford), Kevin Buzzard (Imperial) and James McKee (Royal Holloway). For more details of the programme and venue, as well as general information about SECANTS, and how to be put on the email mailing list, visit the website (www.maths.nott.ac.uk/personal/jec/secants/secants20.html).

LMS - IMA LIAISON

Regular meetings are now taking place between officers of the LMS and the IMA to explore ways in which the two organisations can arrange their activities for the benefit of the mathematical community. At the meeting on 7 February 2003 it was agreed that joint reports on these meetings should be published, for the members of both societies. This is the first such report.

1. Action will be taken to promote meetings of the LMS and the IMA both in the LMS *Newsletter* and in *Mathematics Today*. For example, a 'British Women in Mathematics' meeting is to be held at De Morgan House on Tuesday 6 May 2003, organised by Alice Rogers, chair of the LMS Women in Mathematics Committee. IMA members should be invited to take part. .
2. The details of the David Crighton medal were discussed. The medal is to be awarded triennially, by the two organisations jointly. It was agreed that the obverse of the medal should feature David Crighton's image together with dates of his birth and death, and his name. For the reverse it was agreed that the medal should contain the insignia of the LMS and the IMA, placed within overlapping circles, together with the initials IMA and LMS. A sub-committee will review the artwork and consider further details. Nominations for the David Crighton medal had been requested through *Mathematics Today* and the LMS *Newsletter*, and were being considered.
3. A joint delegation from the LMS and IMA met with Sir Howard Newby (Chief Executive of HEFCE) in January to discuss our concerns about threats facing university mathematics departments. Sir Howard said that HEFCE was, by its charter, limited as to what advice it could give individual universities, but he was able to give some general advice to the delegation. Several points arose from the discussion. Students seeking universities close to home would require access to mathematics, but student numbers were the primary driver and mathematics was vulnerable to low student demand. Other points were: the need for departments to consider curriculum change and innovative courses, career opportunities as strong motivators for young people, and possible funding for the establishment of links between HE, industry and schools. The Mathematics community should speak to Vice-Chancellors, pointing out the problems for departments that could be created by unhelpful funding mechanisms. We should also consider the possibility of a one-day meeting open to the media on the case for, and threats to, mathematics in universities.
4. The meeting agreed that the letter that is currently sent to Universities, in support of departments under threat, should be revised. The possibility of obtaining funding for the joint commerce, school, and university initiatives that HEFCE was supporting should be explored.
5. The present liaison on education between the two organisations is encouraging, with an emphasis on the Smith Inquiry. It was reported that ACME had agreed to focus its activities on co-operation with the Inquiry. The meeting discussed the proposed inclusion of mathematics within the National Network for Excellence in Science Teaching. More details of this are required before the full implications can be understood.
6. The process of bringing together a panel for the International Review of Mathematics in the UK is now ongoing. Jean-Pierre Bourguignon has agreed to be the chair. The question arose of how LMS, IMA and RSS could co-operate with regard to International Organisations such as ICIAM, ECCOMAS, EMS, EuroMech. It was suggested that the Executive Secretaries prepare a paper stating the present relationship between each organisation.
7. There was a broad discussion of the aims and objectives of LMS and IMA in their approach to conferences and meetings. The main difference was between that of a grant-giving body and a conference-organising body. It was agreed that mutual understanding of the situation was the key to further progress.

Charles Evans
Norman Biggs

SCIENCE AND ENGINEERING AMBASSADORS SCHEME

Science, technology, engineering and mathematics need selling to young people. Declining numbers are taking up science and technical subjects at university and as a career. The Science and Engineering Ambassadors Scheme (SEAS) has been initiated by the DTI and DfES and is intended to help to halt that decline by informing young people of the opportunities that a science, engineering or technology-based career can offer them.

Ambassadors can be involved in a range of activities, including:

- Supporting school activities like clubs, awards and competitions
- Offering mentoring and careers guidance
- Acting as role models
- Helping to provide work experience placements for teachers and students.

The Ambassadors Scheme is run through SETNET and its network of 53 local SETPOINTS.

We are keen to identify people who can join the Ambassadors Scheme to promote mathematics in schools. The main attributes for ambassadors are enthusiasm, commitment and the ability to identify with young people, but above all, a passion for what they do and a wish to inspire young people to achieve their full potential. Ambassadors receive appropriate instruction and are briefed on today's education needs.

To find out more about the Ambassadors Scheme, contact Yvonne Baker, SEAS National Manager (tel: 0800 146415, email: seas@setnet.demon.co.uk).

ICMP 2003 – LISBON

The 2003 International Congress on Mathematical Physics will be held in Lisbon from 28 July - 2 August, with a Young Researchers Symposium (YRS) to be held from 25-26 July. More details can be found at the Congress website (www.icmp2003.net).

MOSCOW MATHEMATICS JOURNAL

The *Moscow Mathematics Journal* was founded in 2001, published by the Independent University of Moscow. As many readers will know, the IUM was created as an heroic and successful effort to help maintain the very high standard of Moscow academic life after the collapse of the Soviet Union and its funding for research. The *MMJ* is an international journal published quarterly with the broad outlook on mathematics characteristic of the Moscow school. Edited by Yulij Ilyashenko and Michael Tsfasman, it encourages research-expository papers readable by a wide mathematical audience.

We may complain about the journals crisis — about annual cancellations and soaring prices — but here is a positive way to respond. At the modest price of only $160 per year you can subscribe to a first-rate journal with an outstanding editorial board which both supports the IUM and strikes a blow for low-cost mathematical publication. At the very least, talk to your library representative about it. For more information, subscription enquiries and sample requests visit the website (www.ams.org/distribution/mmj).

DERIVED CATEGORIES AND APPLICATIONS

A meeting on the above theme will be held at the University of Edinburgh from 1-8 June 2003. A number of lecture series given by eminent experts will be run in the mornings, on the basics of derived categories and on applications to algebraic geometry, algebraic topology, representation theory and noncommutative algebra; in the afternoons speakers will explore aspects of current research in the above areas.

The meeting is being run under the auspices of the International Centre for the Mathematical Sciences at Edinburgh; it is part of the European Science Foundation programme on Noncommutative Geometry, which is providing most of the funding. Additional funding is being provided by (*inter alia*) the LMS, including some funds to support attendance by UK postgraduate students.

Further details can be found at www.ma.hw.ac.uk/icms/meetings/2003/dercat/index.html or contact Ken Brown (Glasgow) (kab@maths.gla.ac.uk).

GROUPS IN GALWAY

The annual Groups in Galway Conference will take place from Friday 16 - Saturday 17 May in the Department of Mathematics, National University of Ireland, Galway. Among the invited speakers are

- C.M. Campbell (St Andrews, UK)
- R. Higgs (University College Dublin, Ireland)
- L. Kappe (SUNY at Binghampton, USA)
- T. Laffey (University College Dublin, Ireland)
- R. Morse (SUNY at Binghampton, USA)
- C. Scoppola (L'Aquila, Italy)

For further information contact the organisers: John Burns (john.burns@nuigalway.ie) and Dane Flannery (dane.flannery@nuigalway.ie), Department of Mathematics, NUI, Galway, Ireland (tel: + 353 91 750442, fax: + 353 91 750542). The conference webpage (http://stokes.nuigalway.ie/~dane/gig03.html) will be updated with relevant details, as they become available.

NON-COMMUTATIVE ASPECTS OF NUMBER THEORY

This conference will be held at Van Mildert College, University of Durham, 28 August – 5 September 2003. It will be organised by: John Cremona (Nottingham); Ivan Fesenko (Nottingham); Martin Taylor (UMIST).

The meeting will have two main components. The first component is a review of recent progress in the areas of zeta- and L-functions, the Langlands programme: classical and geometric, non-commutative coverings of arithmetic schemes, geometric Galois theory, non-commutative Iwasawa theory, geometric Galois module theory. The second component is a review of several recent theories and approaches at the changing border between number theory and dynamical systems, non-commutative analysis, statistics, algebra, geometry, and parts of mathematical physics, which have potential to influence future developments of number theory.

It is expected that there will be somewhere between 75-85 participants. The conference is primarily intended for experts in number theory, although we hope that a number of mathematicians from a range of other backgrounds will attend and actively participate in the conference.

The list of confirmed participants includes G. Anderson (Minneapolis), C. Bushnell (London), T. Chinburg (Philadelphia), J. Coates (Cambridge), A. Connes (Paris), B. Conrey (Palo Alto), C. Deninger (Münster), M. Fried (Irvine), A. Goncharov (Providence), D. Gross (Cambridge, MA), G. Henniart (Orsay), Y. Ihara (Kyoto), M. Kapranov (Toronto), Yu. Manin (Bonn), M. Marcolli (Bonn), J. Oesterlé (Paris), F. Pop (Bonn), P. Sarnak (Princeton), P. Schneider (Muenster), C. Soulé (Orsay).

The conference will be supported by EPSRC, the European Union Networks GTEM and AAG, and by the London Mathematical Society. For further details see the conference web page (www.maths.nott.ac.uk/personal/ibf/confd.html). Those interested in attending should contact ibf@maths.nott.ac.uk .

INTEGRABLE MODELS, CONFORMAL FIELD THEORY AND RELATED TOPICS

This, the seventh annual meeting on Integrable Models, Conformal Field Theory and Related Topics, will take place, with financial support from the Institute of Physics and the London Mathematical Society, on Saturday 26 April 2003 at the University of York, Department of Mathematics, Goodricke College. The speakers are:

- Michel Bauer (Saclay)
  SLE processes and boundary conformal field theory
- Hitoshi Konno (Cambridge and Hiroshima)
  Elliptic Quantum Groups: the Drinfeld Realization and Applications
- Christian Korff (Edinburgh)
  The six-vertex model at roots of 1
- Shinsuke Kawai (Helsinki)
  Coulomb-gas formalism of boundary CFT

There will be a small registration fee of £5 which will include coffee/tea and lunch. Funds are available to help with postgraduate students' travel expenses, though these should be matched by support from departments/RTSGs. Please email Niall MacKay (nm15@york.ac.uk) in advance if you would like to apply for support and please book early to take advantage of the cheaper train fares.

EMS-SMF-SMAI MEETING ON APPLIED MATHEMATICS AND APPLICATIONS OF MATHEMATICS 10-13 February 2003, Nice

The European Mathematical Society, the Societé Mathématique de France, and the Societé de Mathématiques Appliques et Industrielles organised this Meeting, with support from the Université de Nice Sophia-Antopolis (Laboratoire J A Dieudonné). The programme was chosen by an international scientific committee, which was chaired by Pierre-Louis Lions (France) and Sergei Novikov (USA/Russia), with Alain Damlamian acting as coordinator.

At an impressive opening ceremony at the Palais des Congrés Acropolis, we were welcomed by Rolf Jeltsch (recent President of EMS), Michel Théra (President of SMAI), Michel Waldschmidt (President of SMF), by Civic and University representatives and by John Kingman, who had been elected as President of the EMS for four years from 1 January 2003.

The pattern of the Meeting involved Plenary lectures and about 45 mini-symposia, one of which was sponsored by the London Mathematical Society. Moreover there was a Special EMS Event on “Electronic Databases” and two round-table discussions, one on “Mathematics in developing countries (led by Michel Jambu) and one on “Education” (led by Gérard Tronel).

As the title of the meeting emphasises, the scope of the Meeting was very broad, including both Applied Mathematics as such and applications of mathematics in the biological, physical and medical sciences, in engineering, and in finance. Both the plenary lectures and the mini-symposia illustrated this breadth.

The first Plenary lecture was given by David Levermore (Maryland) on "Fluid Dynamical Limits for the Boltzmann equations", and during the four-day meeting other Plenary lectures were given by Alfred Bruckstein (Technion, Haifa) on "Why the ant-trails look so straight and nice: or mathematics of multi-agent interaction", by Robert Eisenberg (Chicago) on "Ion Channels as natural nano devices ripe for mathematical analysis", by Roland Glowinski (Houston) on "Numerical simulation of incompressible viscous flow in regions with moving or free boundaries", by Roland Keunings (Louvain) on "Memory fluids: mathematical and numerical challenges", by Pascal Massart (Orsay) on "Model selection: a non-asymptotic view based on concentration inequalities", by Marek Musiela (BNP-Paribas, London) on "Linear and non-linear valuation methods used in finance and insurance", by Bernard Prum (d'Evry) on "Statistical analysis of genomic data", René Schoof (Rome) on "Algorithms for factoring integers and computing discrete logarithms" and by Enrique Zuazua (Madrid) on "Dynamics, control and numerics".

The 45 mini-symposia were grouped as follows"-

1. Control theory, optimization, operations research and system theory;
2. Applications of mathematics in biology, including genomics, medical imaging, models in immunology, modelling and simulation in biological systems;
3. Scientific computation, including *ab-initio* computations and molecular dynamics;
4. Meteorology and climate, including global change;
5. Financial engineering;
6. Signal and image processing;
7. Nonlinear dynamics;
8. Probability and statistics;
9. Inverse problems;
10. Fluid dynamics;
11. Materials science;
12. Applied geometry.

The London Mathematical Society sponsored and financed a Mini-symposium on "New Mathematical Developments in Signal Processing"; this was organised by David Broomhead (UMIST) and Jaroslav Stark (Imperial College), and had contributions from Patrick Flandrin (Lyon), John McWhirter (LMS Member and IMA President) and Tim Sauer (Virginia), following an introduction by Jaroslav Stark.

The writer found the quality of the Plenary lectures and the Mini-Symposia to be very high. And, moreover, discussions with colleagues from other European countries and from North America and elsewhere were valuable and stimulating.

Members of the Meeting were privileged to attend receptions at the Palais des Congrès Acropolis and at the Université de Nice. The hospitality of the EMS and of our French hosts was much appreciated, as was expressed on our behalf by John Kingman, President of the EMS, and by other Society Presidents at the Reception at the Université de Nice.

For my own part, as a member of the Scientific Committee, I would like to express by appreciation of the fine work of coordination done by Alain Damlamian. Also I wish to acknowledge with pleasure the support of The Royal Society through a Conference grant.

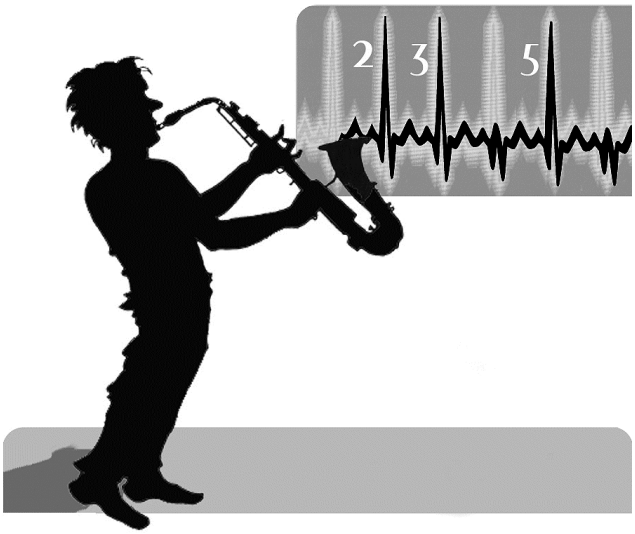
Trevor Stuart

POPULAR LECTURES 2003

Manchester University – Thursday 1 May
Institute of Education, London University – Tuesday 1 July

Dr David Acheson
Mathematics, Magic and the Electric Guitar

‘Maths is sometimes magical. But can it explain the legendary Indian Rope Trick? And what has it got to do with playing the guitar?’



Professor Marcus du Sautoy
The Music of the Primes

‘A million dollars awaits the person who can unravel the mystery of the hidden music that explains the cacophony of the prime numbers.’

MANCHESTER (Roscoe Building, Brunswick Street) Commences at 6.30 pm, refreshments at 7.30 pm, ends at 9.00 pm. Admission is free. Enquiries to Professor J.N. Ray, Department of Mathematics, University of Manchester, Oxford Road, Manchester M13 9PL (tel: 0161 275 5800, email: nige@ma.man.ac.uk).

LONDON Commences at 7.00 pm, refreshments at 8.00 pm, ends at 9.30 pm. Admission is free, with ticket. Apply by **26 June** to Miss L. Taylor, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (email: taylor@lms.ac.uk). A stamped addressed envelope would be appreciated.

RESEARCH MEETINGS COMMITTEE
LMS WORKSHOPS

As well as the successful series of Durham Research Symposia and the LMS/EPSRC Instructional Short Courses, the LMS Research Meetings Committee supports research workshops. These may be held anywhere in the UK, and are an opportunity for a small group of active researchers to work together for a concentrated period, on a specialised topic. Possible aims could include:

- to understand an important new piece of mathematics in an area where the participants hope to make further progress;
- to make progress on a particular problem;
- to combine expertise to shed new light on a specific area.

There is no prescribed format for an LMS workshop, but it is expected that the number of participants will be usually no more than 40, and could be as low as 10, meeting for a period of three days or more. All participants should be actively involved in the programme, and should be identified in the proposal; the participation of appropriate postdocs and graduate students is encouraged. Applications to support development of research in an area not ready for a larger-scale application (either to LMS or EPSRC) are welcomed. All proposals are refereed, and the Committee will only offer support if it believes that the benefits to UK mathematics are likely to be significant. Subject to this constraint the Committee aims to evaluate proposals rapidly, to allow meetings on key topics to be arranged at relatively short notice.

Requests for support (for travel and subsistence of participants, and reasonable associated costs) in the range £4k - £12k will be considered by the Committee. Applications for partial support for larger events will only exceptionally be supported. The primary purpose of the scheme is to support new research initiatives, and the Committee may take this into account in considering support for meetings which form part of an established series. Grant requests for conferences should be made to the Society's Programme Committee instead, which has funds for this purpose.

Applications can be made to the Chair of the Research Meetings Committee, Professor A.J. Scholl, at any time. There is no application form. Proposals should contain a description of the research area, the aims and format of the workshop, a list of participants and a budget, as well as details of proposed location and timing. Applicants are advised to consult Professor Scholl informally about their proposed programme and timescale before making an application.

REMARKABLE DELTA '03

Registrations are now being accepted for the Remarkable Delta 2003 Conference being held in Queenstown, New Zealand from 23-27 November 2003. Delta ’03 is one of a sequence of Southern Hemisphere conferences on mathematics education specifically targeting the tertiary level. The “Remarkable” in the title is the name of one of the mountains near Queenstown. It also describes the scenery there which is amongst the most beautiful in the world.

The conference will cover all areas and aspects of university mathematics including different aspects of undergraduate courses in both mathematics and statistics, bridging courses, teacher education, assessment, technology, and so on.

The plenary speakers are:

- Johann Engelbrecht (University of Pretoria, South Africa)

- Anna Sierpinska (Concordia University, Canada)
- Lynn Steen (St Olaf College, Minnesota, USA)
- Chris Wild (University of Auckland, NZ)

Four panels are to be held on the topics of Bridging courses, Undergraduate issues, Teaching Statistics, and the Uses of Technology.

More information can be found on the website (www.maths.otag.ac.nz/delta03). Registration can be effected on-line. The website also contains details of accommodation, the submission of papers, etc.

SINGULARITY THEORY AND ITS APPLICATIONS

The Mathematical Society of Japan 12th International Research Institute (12th MSJ-IRI) meeting on Singularity Theory and its Applications is being held from 16-25 September 2003 at the Sapporo Convention Centre, Sapporo, Japan. The main speakers are: H. Hironaka (Tokyo); M. Kazarian (Moscow); A. Parusin'ski (Angers); B. Teissier (Paris) and W. Veys (Leuven). Topics include:

- Wave propagation (Lagrangian singularities etc.)
- Differential geometry and vision
- Global properties
- Real algebraic geometry
- Stratification theory
- Topology of complex algebraic varieties
- Applications to quantum field theory
- Resolutions of singularities

For further information contact: sing@math.sci.hokudai.ac.jp or visit the website (www.math.sci.hokudai.ac.jp/~sing/).

WELCOME TO MATHBANK
(www.mathbank.soton.ac.uk)

The aim of this article is to introduce readers to the MathBank website, the result of a project undertaken through the award of a National Teaching Fellowship in 2000.

The purposes of the website have changed little since the original conception as outlined in the MSOR Newsletter in August 2000 [1]. The development phase of the project is now substantially complete. The aim is to provide a database of teaching resources for lecturers who may not have invested in the use of technology in their teaching in a radical way, but who rely on high quality exposition based on well-structured explanation, with appropriate problems. Many lecturers find themselves having to teach courses on standard material, with a syllabus which perhaps does not fit the emphasis given in particular textbooks on the subject. Under those circumstances it is tempting to prepare the material “from scratch”, with an eclectic use of printed resources for proofs, problems and examination questions. A considerable investment of time is necessary to accomplish this, and it would be really convenient to be able to take the textbook and simply customize it to the needs of the particular course. For example, you may be teaching a mathematics course for second year engineering students covering some parts of Fourier Series, some types of partial differential equations approached only by separation of variables, and some special functions chosen by the Mechanical Engineering department. The nearest textbook is designed for electronic engineers and so the coverage is not quite right and a number of the problems are

inappropriate. This is where Mathbank may be able to help you. The intention is to save the lecturing community as a whole the unnecessary time and labour in such an enterprise, by providing a resource bank of notes, problems, examination questions and perhaps other items which can be downloaded and then customized. It is important that the database be easily accessible, and searchable, and that the material be available in formats which colleagues can easily manipulate. It is important too, that the database should not be static, so that new material can be added and that this should be a reasonably straightforward process. It is hoped that these criteria have been met. The Fellowship funds enabled us to employ programming expertise from the University of Southampton Geodata Unit to provide the structure we wanted.

Let's see what happens if we log in and put in the word "Fourier" to search. We are presented with a list of resources that are available. An item in this list may be a single document, like an examination question and solution. It may be a directory containing several documents, the directory as a whole having a name or classification containing the search word, or it may be a Resource, which in the structure of the database is an object containing several directories. This may be something like a book, with each chapter being a separate directory, and then each "bite-sized" section of notes being a single document identified by an appropriate keyword. The search list will give some information about the item in question, which will have been supplied by the person who knows best, namely the original author who uploaded it onto the site.

What is there at the moment? Well, I have been fortunate in having the support of many of my Southampton colleagues in kindly supplying material: mainly lecture notes, problem sheets and exam questions. We used some of the project funds to pay undergraduates during a summer vacation to turn a lot of this handwritten or typed material into LaTeX. The students learned extremely rapidly and became very efficient and remarkably accurate in their use of LaTeX. Subsequently one of our recent MMath graduates about to start a PhD was paid to upload this material and catalogue it, supplying keywords and assigning each item to a category in a subject list which was constructed using a mixture of sources including the SEFI European Engineering Mathematics syllabus lists [2]. Because all this comprised the initial construction phase of the site, it looks as if I am the author of all the documents. This is not so!

When we have done a search, or when we are browsing, how do we know what each item contains in detail? For such a database whose documents can potentially be of many different formats (in fact there is no practical restriction in our case) the inclusion of effective previewing facilities is a considerable problem. We decided not to attempt this on a systematic basis, but instead to do two things: (1) to encourage anyone who uploads a set of documents to write an index file as a .txt file; a more detailed specification (maybe a sentence) for each item can then be given, and the file can be viewed without downloading, and (2) to provide PDF versions as well as LaTeX or other versions where possible (in the case of documents which we uploaded a script was written to do this).

Is the site going to be useful? This depends on two things – first, on the quality of the documents and the willingness of colleagues to use them to save time and unnecessary labour, and second, the willingness of colleagues to share their own materials and upload them onto the site.

Do you have an examination paper to set for your first year engineering mathematics class? You can find lots of questions on Mathbank, either by searching for the keyword "engineering" or by searching by topics (one variable calculus, matrices etc.). If you see a whole directory of questions look at the index file to see which ones will be of particular interest. Now download the ones you want. You might find a couple which fit your requirements exactly, or there might be some which you simply want to adapt, by changing

the coefficients or the functions involved. You are free to do that, and since you have been able to download the LaTeX file itself it is easy to edit.

So, if you have some material you are willing to share, what should you do? First, become a registered user. Now if you have 50 problems and solutions they may all be on a similar topic, so your resource may consist of a single directory. We don't expect you to upload 50 files separately. Turn the 50 files into a .zip file. There is the facility to upload this and for it to be automatically unpacked into its 50 constituents. Then for each document you can catalogue it and supply keywords. This is not difficult to do, and the Introduction, accessed from the front page, provides helpful instructions. The cataloguing is in some sense the most important part of the process, since it directs documents to users doing a search.

Will the site be useful? That depends on you, both as a user and as a provider. As a user it doesn't matter if the site doesn't contain exactly what you want: you can adapt and minimise labour. Material uploaded should not be copyright. As a provider do not be modest about your offerings. If a resource like this takes off and gets well used it will be of benefit to the mathematical community as a whole.

My final word is a big thank you to my colleague Jim Renshaw whose advice and expertise has been invaluable throughout the development of MathBank.

Keith Hirst
University of Southampton

[1] Keith Hirst *MathBank, A Resource Bank for Teachers and Learners*. MSOR Newsletter, August 2000, p.8.

[2] Société Européenne pour la Formation des Ingénieurs (European Society for Engineering Education) *A Core Curriculum in Mathematics for the European Engineer* N.C. Steele, Plymouth/Coventry, 1991, p.37, ISBN 2-87352-001-9

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BOOK REVIEWS

What Are the Chances?: Voodoo Deaths, Office Gossip, and Other Adventures In Probability by Bart K. Holland; Johns Hopkins U. Press (2002); pp 141; 0-8018-6941-2

Calculated Risks [US title], **Reckoning with Risk** [UK title] by Gerd Gigerenzer; Simon & Schuster (2002) ; pp 310 ; 0-713-99512-2

In his book 'A Treatise on Probability' (1921), John Maynard Keynes writes of his Bibliography: "I have not read all these books myself, but I have read more of them than it would be good for any one to read again. ... The list is long ; yet there is, perhaps, no subject of equal importance and of equal fascination to men's minds on which so little has been written."

The importance and fascination of probability (and its empirical sister statistics) has greatly increased since then. And the shortage of written accounts has long since been more than alleviated in every aspect: the philosophical basis, the mathematical development, the technical applications, and in the provision of popular texts for the general reader. The war (1939-46) provided a torrent of progress in theory and applications, but also dammed the flow of books, so the modern era may be said to begin in the academic universe with the book by William Feller, 'Introduction to Probability Theory and its Applications' (1950). All

subsequent introductory texts are measured against this one. In the popular domain the modern era begins with 'How to Lie with Statistics' (1954) and 'How to Take a Chance' (1959), both by Darrell Huff (b. in Iowa 1913; d. 27 June 2001). These two books likewise set the agenda for all subsequent rivals; they are both still eminently readable and relevant, and have become classics of the genre. Probability is important for two main reasons. In the first place, well-founded statistical analysis supports most scientific activity, (or at least it is supposed to do so); and descriptions of many natural phenomena in science are formulated in terms of stochastic processes and other probability models. This generates the massive growth in mathematical statistics, random processes, and probability, and books thereon. In the second place, there has been a flood of popular books in these areas because chance impinges on the general public in an interactive way, unlike our experience of most other natural phenomena. That is to say, you live in a fluid, you comprise cells, the cosmos proceeds to fulfil its destiny, and you are bombarded with radiation; events that are ideal for scientific analysis, but there isn't much you can do to change any of this, or fight back. By contrast, the many manifestations of chance require your constant attention and decisions. You may be presented with medical test results in the form of probability statements, and are expected to decide between various treatments with random outcomes. The government tells you to look to your future by choosing between the uncertainties offered by stocks, bonds, cash, gold, and derivatives of these. Your child may be due for one of a number of inoculations. You may be in Las Vegas. In these and many similar circumstances, you must make choices that have disparate and uncertain results.

It follows that books explaining probability and the interpretation of data in an accessible way are increasingly required reading for anyone who wants to be something more than a cork on the water. (Or, if this is too ambitious, one may at least aspire to be a rational and informed cork.) And of course there is a huge range of such books according to what topics they choose to treat, and the level of mathematical ability required. *What are the Chances*, by Holland, comprises six chapters giving examples of everyday randomness: epidemics, chain reactions, tests, life tables, random walks, roulette, queues, and the like. The book is clearly aimed at the general, completely non-technical reader; as there is no more mathematics in this book than that needed to grasp the formula for a binomial coefficient and hence Pascal's triangle. The author's Preface says that the reader will find the examples an effective way to learn basic concepts of probability and statistics, whereas the jacket blurb says that the book offers examples of the impact of chance that will amuse and astonish. The latter is probably the more realistic assessment. The examples are, for the most part, standard and familiar, but there are some nice touches; for example, the author has taken the trouble to reproduce the original table for L. von Bortkiewicz' data on deaths from horse kicks in Prussian cavalry regiments. But, less pleasingly, there is no bibliography, and some of the references are perverse; for example, Feller [*loc. cit.*] is far more suitable as a source for R.D. Clarke's 1946 results on flying-bomb hits (on London) than the original paper, which lurks in a scarce issue of a not-very-widely-distributed journal, *Reckoning with Risk* by Gigerenzer, is rather more focused in its intention. It comprises 14 chapters of which the core is formed by detailed accounts of breast cancer screening, interpreting test results, DNA fingerprinting, and probability statements in legal contexts. This book is also aimed at the general reader, and contains essentially no mathematics. However, it does have a glossary including definitions of the key notions of independence and conditional probability. And it does have a good collection of references. The jacket says the book illustrates how we can uncloud our minds, demand helpfully presented information, and turn ignorance into insight. For a sufficiently able and industrious reader this is likely to be a fair claim.

These two books enter a fairly crowded marketplace; rivals include for instance, picking three recent publications at random: *Randomness* by Deborah J. Bennett, Harvard UP (1998), contains a nice selection of classic examples in probability, aimed towards the history and philosophy of the subject, with a good bibliography. *Chance Rules* by Brian S. Everitt, Springer (1999), covers lotteries, coincidences, paradoxes of conditional probability, risk, and the like, with a slightly larger dash of statistics. *Taking Chances* by John Haigh, Oxford

UP (1999), concentrates mainly on games and betting, and offers the opportunity to do more mathematics than most other books of this type.

The choice of topics considered is so various, that no strict ordering of all these books can be given. They have different aims, and they each have their several merits. None uniformly dominates any other. But everyone should read Huff's books.

David Stirzaker
St John's College, Oxford

SCOTTISH ALGEBRA DAY

After a three year sabbatical, Scottish Algebra Day has returned and will be held at the University of Edinburgh on 2 May 2003. The speakers are:

- Bettina Eick (Braunschweig) *On automorphism groups of polycyclic groups*
- Mark Lawson (Bangor) *Theory and applications of inverse semigroups*
- Ian Leary (Southampton) *Algebraic K_0 for groups that are virtually of type F*
- Steffen Koenig (Leicester) *Polynomial functors in prime degree*

Further details are available on the web (www.ma.hw.ac.uk/~ndg/sad.html) or from the organisers: Nick Gilbert (ndg@ma.hw.ac.uk), Iain Gordon (ig@maths.gla.ac.uk) and Nik Ruskuc (nik@mcs.st-and.ac.uk). The organisers gratefully acknowledge the financial support of the London Mathematical Society, which has, in particular, provided some funds to assist attendance by UK postgraduate students.

EAST MIDLANDS STOCHASTIC ANALYSIS SEMINAR

A two-day meeting will be held in the Department of Mathematics at the University of Hull, from 9-10 May 2003, as part of the LMS funded programme of the "East Midlands Stochastic Analysis Seminar". The speakers are:

- Arnaud Debusche (ENS Cachan, Bretagne)
- Boguslaw Zegarlinski (Imperial College)
- Alexander Shnirelman (Hull)
- Bohdan Maslowski (Prague)
- Andrey Piatnitski (Narvik/Moscow)

For more information on speakers and event contact: Dr Z. Brzezniak, Department of Mathematics, University of Hull (e-mail: z.brzezniak@hull.ac.uk, tel: 01482 465337, fax: 01482 466218. For travel and accommodation information contact: Tina Wardopper, Department of Mathematics, University of Hull (e-mail: t.wardropper@hull.ac.uk, tel: 01482 465885, fax: 01482 466218).

LMS PROGRAMME AND CONFERENCE FUND

Programme Committee has recently awarded grants to support the following conferences and meetings. These are open to members. If you wish to attend, or would like more information, please contact the organiser.

Date/Venue	Title	Organizer/email
31 March – 4 April 2003 Bristol	46th European Study Group with Industry (ESGI)	S.J. Hogan s.j.hogan@bristol.ac.uk
14-15 April 2003 Birmingham	Modelling of Explosions and Reactive Flow	A.C. King a.c.king@bham.ac.uk
14-16 April 2003 Oxford	5th Postgraduate Group Theory Conference	L. Archer, M. Wildon pggt2003@maths.ox.ac.uk
26 April 2003 York	7th Informal UK Meeting on 2d Integrable Models and Conformal Field Theory	N. MacKay nm15@york.ac.uk
3 May 2003 Edinburgh	Scottish Algebra Day	I. Gordon ig@maths.gla.ac.uk
15-16 May 2003 Loughborough	Structure and Stability of Interfacial Waves	R. Grimshaw r.h.j.grimshaw@lboro.ac.uk
19-21 May 2003 Gregynog Hall	Intercollegiate Colloquium in Mathematics 2003	M. Crossley m.d.crossley@swansea.ac.uk
1-8 June 2003 Edinburgh	Derived Categories and Applications	K. Brown kab@maths.gla.ac.uk
16 June 2003 UEA	Group Theory and Combinatorics	D.M. Evans d.evans@uea.ac.uk
22-27 June 2003 Isle of Arran	ISLAND II: Geometry and Discrete Systems	C. Athorne ca@maths.gla.ac.uk
4 July 2003 York	North-Eastern Postgraduate Pure Mathematics Workshop	M. Kambites Mek100@york.ac.uk
26-28 August 2003 Keele	Modern Mechanics and Mathematics: international conference in honour of Ray Ogden's 60th birthday	Y. Fu y.fu@keele.ac.uk
September 2003 St Martin's College, Lancaster	Geophysical Granular and Particle-Laden Flows (INI Satellite Meeting)	J.M.N.T. Gray ngray@ma.man.ac.uk
3-6 September 2003 St Andrews	British Logic Colloquium 2003	R. Dyckoff rd@dcs.st-and.ac.uk
15-18 September 2003 Nottingham	Free Boundary Problems in Fluid Mechanics	L. Cummings Linda.cummings@ nottingham.ac.uk
17-19 September 2003 Edinburgh	Computational Modelling in Medicine	D.B. Duncan d.b.duncan@ma.hw.ac.uk
23-26 September 2003 ICMS, Edinburgh	Workshop on Jack, Hall-Littlewood and Macdonald Polynomials	V.B. Kuznetsov v.b.kuznetsov@leeds.ac.uk
15 November 2003 QUB	Belfast Functional Analysis Day 2003	M. Mathieu m.m@qub.ac.uk
10-11 January 2004 Manchester	New Frontiers in Computational Mathematics	N.J. Higham higham@man.ac.uk
18-21 May 2004 Warwick	Random Matrices and Probability	N.O'Connell noc@maths.warwick.ac.uk

REPORT ON THE MARY CARTWRIGHT LECTURE

The lectures were held on 28 February 2003 in the splendid setting of the National e-science Centre, a modern lecture theatre in a converted church in the centre of Edinburgh, and attracted a capacity crowd of nearly a hundred people. We are grateful to the National e-science Centre, Microsoft Research and SHEFC for their generous sponsorship and hospitality which made this event possible.

Dame Mary Cartwright FRS, 1900-1998, was Mistress of Girton College Cambridge, the first female FRS in mathematics and the first woman to be a member of the Council of the Royal Society. She was LMS President 1961-63, and the only woman to hold that post. Her most famous work was the identification of the *fine structure of solutions* to certain differential equations now seen as an instance of the "butterfly effect". The annual Mary Cartwright lectures are sponsored by the Women in Mathematics Committee of the LMS, and this year were given by Béla Bollobás of Memphis and Cambridge, and Jennifer Chayes of Microsoft Research.

Jennifer Chayes is a scientist who has worked in biology, physics and mathematics, and now heads the Theory group at Microsoft research in Redmond. She spoke on Mathematical Models of the Internet and World Wide Web. During the past decade, complex networks have been increasingly important in communication and information technology. In particular, the internet — a complex network of routers and computers linked by hard wires or wireless connections — is now a principal means of worldwide communcation. The world wide web (WWW) — a huge collection of pages connected by directed hyperlinks — is rapidly becoming our principal repository of information and misinformation, as well as a medium for social and economic interaction. Although the internet and the WWW have many distinct features, both complex networks have a self-organized, rather than an engineered, architecture. As a consequence of this self-organization, the internet and the WWW have a host of properties which are different from those encountered in engineered structures: a broad ("power-law") distribution of connections, short paths between two given points ("small world phenomenon"), robustness to random errors, vulnerability to malicious attack, etc. Jennier's talk reviewed some of the distinguishing observed features of these networks, and the recent models which have been devised to explain these features. The basic models have their origins in statistical physics, probability theory, graph theory and game theory.

Béla Bollobás works at the Universities of Memphis and Cambridge. He spoke on Models of Large-Scale Real-World Networks, surveying recent results obtained jointly with Oliver Riordan. In 1998, Watts and Strogatz observed that many large-scale real-world networks, including neural networks, power grids, collaboration graphs, and the internet, have numerous common features that resemble properties of random graphs. It was also realized that the standard mean-field and lattice-based random graphs are not appropriate models of these large-scale networks, so we should look for other classes of random graphs. One of the main features demanded of these new random graphs is that they should be scale-free. The first such model was introduced by Barabási and Albert in 1999; by now, numerous models of scale-free random graphs have been proposed and studied, mostly by computer simulations and heuristic analysis.

Both lectures were much appreciated and attracted substantial discussions. A reception was held in the e-science centre, followed by dinner at Howies Restaurant, and afterwards, for those who did not have to catch the last train home, traditional activities in an Edinburgh hostelry.

Ursula Martin

RECORDS OF PROCEEDINGS AT MEETINGS

ORDINARY MEETING

held on *Friday 28 February 2003* at the National e-Science Centre, Edinburgh. About 79 members and visitors were present for all or part of the meeting.

The meeting began at 3:30 pm, with Professor P. GODDARD, FRS, President, in the Chair.

The Records of the Proceedings of the Society Meetings held on 23 October, 15 November and 22 November 2002 were signed as a correct record. Three people signed the book and were admitted to the Society.

Dr F.A. ROGERS introduced a lecture given by B. Bollobás on 'Models of Large-Scale Real-World Networks'.

After tea, twenty three people were elected to Ordinary Membership: A. Alghamdi, A.B. Baffa, N.W. Brill, T. Brzezinski, K. Chen, D.G. Crowdy, Y. Duan, P.P.G. Dyke, D.P. Goodall, R.H.J. Grimshaw, D.G. Hobson, M. Hoffman, R.L. Long, P.M. Lumb, G. Patternain, J.J. Ramon-Mari, S.G. Scott, T. Shardlow, R.J. Szabo, I. Todorov, R.W. Tucker, M. van Gans, M.W.M. Waldhausen; forty six people were elected to Associate Membership: P.E. Anderson, L.E.L. Archer, R.E. Baker, G. Barmpalias, R.W. Barraclough, J.K. Barrett, M.E. Bate, D. Biswas, M.S. Boase, A.R. Brodlie, J.G. Brookman, M. Cariglia, K.M. Chicot, M.D.P. Daws, R. Elwes, M.A. Esslemont, G.A. Evans, R.D. Eyres, K.E. Gehles, R.D. Gray, S.J.A. Halliday, R.A. Hardy, Z.M. Harper, D.P. Hunt, A. Ilderton, J.M. Ireland, P.J. Kirby, T. Kluge, R.P.I. Lewis, J. Little, E. Long, D.A. Mackie, T. Macko, S.P. Nixon, J. Perez-Velazquez, G. Petridis, S.A. Pinotsis, C.M. Postlethwaite, J.C.A. Ridgeway-Taylor, P.H.C. Shaw, R.C. Smith, P.A. Smith, G.E. Stapleton, M.J. Towers, A.R. Wade, M.J. Wildon; and one person was elected to Reciprocity Membership: A.A. Weidner (Amer. Math. Soc.).

Professor U. MARTIN introduced the Mary Cartwright Lecture given by J. Chayes on 'A Model of Directed Scale-Free Graphs'.

After the meeting, a reception was held, funded by the Women in Science Programme of the Scottish Higher Education Funding Council, and a dinner was held at Howies Restaurant.

ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES

EuroWorkshop

STOCHASTIC METHODS IN COAGULATION AND FRAGMENTATION

(8-12 December 2003)

Supported by the European Commission, Research DG, Human Potential Programme, High-Level Scientific Conferences - HPCF-CT-2002-00106

in association with the Newton Institute programme entitled *Interaction and Growth in Complex Stochastic Systems* (21 July - 19 December 2003)

Organisers: James Norris (Cambridge), Markus Kraft (Cambridge), Wolfgang Wagner (Berlin).

Theme of EuroWorkshop: The EuroWorkshop will covers recent advances in the analysis of stochastic models for coagulation and fragmentation. Topics will include: deterministic scaling limits and analysis of limit equations, spatial models, multiple coagulation, homogeneous and self-similar processes, fast numerical schemes for coagulation/fragmentation equations, gelation phenomena. A special session will be devoted to applications in chemical engineering and computational issues arising in industrial applications.

Participants include: D. Aldous (Berkeley), I. Armendariz (Storrs), H. Babovsky***** (Ilmenau), J. van den Berg***** (Amsterdam), J. Bertoin (Paris), P. Chassaing***** (Nancy), M. Deaconu***** (Nancy), M. Escobedo***** (Bilbao), N. Fournier***** (Nancy), I. Jeon (Catholic University of Korea), M. Kraft (Cambridge), P. Laurencot***** (Toulouse), J-F. Le Gall (Paris), M. Loulakis (Cambridge), A. Lushnikov***** (Moscow), P. March***** (Ohio), G. Miermont***** (Paris), J. Norris (Cambridge), O. Penrose (Heriot Watt), B. Pittel***** (Ohio), K. Sabelfeld***** (Berlin), J. Schweinsberg***** (Cornell), A. Stevens***** (Leipzig), R. Tribe (Warwick), W. Wagner (Berlin), O. Zaboronski (Warwick), O. Zeitouni (Technion).

(***** indicates provisional)

Location and cost: The EuroWorkshop will take place at the Newton Institute and accommodation for participants will be provided in single study bedrooms with private bathroom in New Hall (Buckingham House). Dinner and Lunch will be served at Wolfson Court. The workshop package, costing £550, includes accommodation, breakfast and dinner from dinner on Sunday 7 December until breakfast on Saturday 13 December, and lunch and refreshments during the days that lectures take place.

Support: The EuroWorkshop is supported by the European Community and funding is available to support a limited number of young (under 35 years of age) researchers and overseas senior researchers who are nationals of EC Member States or of the Associated States (Iceland, Liechtenstein, Norway, Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, Israel, Switzerland). Self-supporting participants of any age and nationality are welcome to apply. There are also limited programme funds available for which applications are welcome.

Further information and application forms are available from the web (www.newton.cam.ac.uk/programs/IGS/igsw04.html). Completed application forms should be sent to Tracey Andrew, Isaac Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH or via email (t.andrew@newton.cam.ac.uk). Closing date for the receipt of applications is **30 June 2003.**

BRITISH WOMEN IN MATHEMATICS DAY

The 2003 British Woman in Mathematics Day will be held on Tuesday 6 May at the London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS. Details of the programme are below. While this is an occasion particularly for women active in mathematics to get together, men are certainly not excluded.

One aim of the day is to encourage women approaching the various interfaces - undergraduate/postgraduate, PhD/Postdoc and so on - to stay in mathematics; we hope that an opportunity to see women who are active and successful in mathematics, and to meet with them informally over lunch, tea, etc will have a positive effect in this diection. British Women in Mathematics are very grateful for the support given to this event by the London Mathematical Society.

Programme

10.30	Registration and coffee
11.00 – 1.00 pm	Morning Session
11.00 am	*Dimensions of Julia sets* Gwyneth Stallard, Open University
12.00 pm	*How I became a Computer Scientist* Ursula Martin, St Andrews
12.30 pm	TBA Claudia Yastremiz, Barclays Capital
1.00 pm	Lunch
2.00 – 4.00 pm	Afternoon Session
2.00 pm	*The solution of simultaneous quadratic equations via lattice reduction* Rachel Long, Oxford Brookes
2.25 pm	*Analytic description of finite-amplitude undular bores* Alexandra Tyurina, Coventry University
2.50 pm	*Lower 1-transitive linear orders* Katie Chicot, University of Leeds
3.15 pm	*Can beetles prove that God exists*? Alex James, Sheffield Hallam University
3.40 pm	*A Shape for the Universe: three-dimensional geometrization* Vivien Easson, University of Oxford
4.05 pm	*Mathematical Modelling of the Secondary Sonic Boom* Katerina Kaouri, University of Oxford
4.30 pm	Tea

Followed by an early supper at a nearby restaurant for those able to stay. To register please contact Isabelle Robinson, Secretary, at the address above (tel: 020 7927 0800, fax: 020 7323 3655, email: robinson@lms.ac.uk). The day is free for postgraduate students and £5 for all others – payable on the day.

LONDON MATHEMATICAL SOCIETY MIDLANDS REGIONAL MEETING AND WORKSHOP

Uncertainty Modelling

Meeting 14 May, Workshop 15-17 May 2003

Room AS130, Armstrong-Siddeley Building,
Priory Street, University of Coventry

The Midlands Regional Meeting of the London Mathematical Society will be held on the afternoon of Wednesday 14 May. There will be a reception afterwards and a dinner at 7.00 at the Lanchester Restaurant. The reception is free of charge but the dinner costs £20 (including wine). Numbers are limited, so people wishing to attend the dinner should inform Dr Helen Robinson (h.robinson@coventry.ac.uk) before **1 May**.

3.30 – 4.30 **Olaf Wolkenhauer (UMIST)**
Mathematical Modelling of Cellular Dynamics

4.30 – 5.00 **Tea/coffee**

5.00 – 6.00 **Robert Babuska (Delft)**
Fuzzy Systems

This will be followed by a Workshop on 'Uncertainty Modelling' from 15-17 May inclusive. It is intended that there will be two strands to the workshop, one oriented to control engineering/systems theory and one towards applications in the biological domain. Both events should be of interest to mathematicians working in the field of fuzzy logic. Invited speakers who have accepted include:

R. Babuska (Delft) **D. Pearson (St. Etienne)**
M. French (Southampton) **S. Townley (Exeter)**
E. Ryan (Bath) **A. Zinober (Sheffield)**

For further details, including opportunities to contribute to the workshop, please contact the organiser, Dr Helen Robinson (tel: 024 7688 8586, email: h.robinson@coventry.ac.uk). Coventry University is about 10 minutes' walk from the station.

Both of the above events are supported by the London Mathematical Society.

There are limited funds available to contribute in part to the expenses of members of the Society or research students to attend the Society Meeting on 14 May. Requests for support, including an estimate of expenses, may be addressed to the Programme Secretary at the Society (web: www.lms.ac.uk; email: grants@lms.ac.uk).

For further information visit the website
www.mis.coventry.ac.uk/fuzzy-workshop.html

LMS INVITED LECTURE SERIES

DIRICHLET FORMS AND RELATED STOCHASTIC ANALYSIS

Professor M. Fukushima (Kansai University)

24 - 30 August 2003

The 2003 LMS Invited Lectures will be given at the Department of Mathematics, University of Wales, Swansea. This series is held annually: a single speaker gives a course of 10 expository lectures, examining an important topic in depth, over a five-day period. In the 2003 programme in Swansea there will be two lectures by Professor Fukushima every morning. The following intimately related questions will be discussed:

- **Dirichlet Forms and Function Spaces**
- **Trace Dirichlet Forms and Capacitary Inequalities**
- **Ultracontractivity of Time-changed Processes**
- **A Stochastic Approach to the Douglas Integral**

The associated afternoon sessions will consist of an invited lecture to complement the course from Professor Bogdan.

All mathematicians interested in the topic are welcome to attend the lectures, although the total number of participants may be limited. There is a registration fee of £30, payable on arrival. The registration fee will be waived for research students. Limited funds are available to support participants. Priority will be given to research students and mathematicians who would benefit from attending the lectures, but who would otherwise be prevented from attending by financial constraints.

Accommodation will be in the University of Swansea. A number of single, standard bedrooms have been reserved. The costs are: bed and breakfast: £24.30 + VAT per night; bed and breakfast en-suite £33.00 + VAT per night. For further details, contact the organiser Niels Jacob (N.Jacob@swansea.ac.uk), or visit the website (www-maths.swan.ac.uk/), which also contains a registration form.

LONDON MATHEMATICAL SOCIETY

in association with the Isaac Newton Institute

Spitalfields Day

Tuesday 13 May 2003

Partial Differential Equations and Computational Material Science

Organisers: C.M. Elliott (Sussex) and M. Luskin (Minneapolis)

10:30 – 11:00	**Coffee**
11:00 – 12:00	**M Luskin (Minneapolis)** ***Metastability and microstructure in structural phase transformations***
12:30 – 13:30	**Lunch**
14:00 – 15:00	**C Le Bris (CERMICS, Ecole Nationale des Ponts et Chaussees, Champs-sur-Marne)** ***Inserting the atomic scale in computational materials science: state of the art and challenges***
15:00 – 15:30	**Tea**
15:30 – 16:30	**H Garcke (Regensburg)** ***Phase field models for diffusional phase transformations in multi-component alloys***
17:00 – 18:00	**Wine Reception**

These lectures are linked to the Isaac Newton Institute programme on
Computational Challenges in Partial Differential Equations
(20 January - 4 July 2003)

Anyone interested is welcome to attend. Please let Tracey Andrew at the Institute know by **25 April 2003** if you intend to come, to help us plan for lunch: (tel 01223 335984; fax: 01223 330508; email: t.andrew@newton.cam.ac.uk).

There are limited funds available to assist research students to attend, please apply by **25 April 2003** to Tracey Andrew at the Institute. Scientific enquiries may be addressed to Professor C.M. Elliott (email: c.m.elliott@sussex.ac.uk).

UNIVERSITY OF CAMBRIDGE

FACULTY OF MATHEMATICS

ADAMS PRIZE

Differential Geometry

The Chairman of the Adjudicators for the Adams Prize invites applications. The Prize will be awarded this year for research achievement in the field of Differential Geometry.

The prize is open to any person who, on 31 October 2003, will hold an appointment in the UK, either in a university or in some other institution; and who is under 40 (in exceptional circumstances the Adjudicators may relax this age limit). The value of the prize is expected to be approximately £15,000; of which one third is awarded to the prize-winner on announcement of the prize, one third is provided to the prize-winner's institution (for research expenses of the prize-winner) and one third is awarded to the prize-winner on acceptance for publication in an internationally recognised journal of a substantial (normally at least 25 printed pages) original article, of which the prize-winner is an author, surveying the field of Differential Geometry

Applications (seven copies), comprising a CV, a list of publications, the work or works (published or unpublished) to be considered, and a brief non-technical summary of the most significant new results of these works (designed for mathematicians not working in the subject area) should be sent to:

The Secretary of the Adams Prize Adjudicators,
Faculty Office, Centre for Mathematical Sciences,
Wilberforce Road, Cambridge CB3 0WA

(enquiries may be emailed to: faculty@maths.cam.ac.uk).

The deadline for receipt of applications is 31 October 2003.

HYDRODYNAMIC STABILITY THEORY

LMS/EPSRC Short Course

Keele University, 22-27 June 2003

Organiser: J.J. Healey

When fluids flow, there is the possibility that instability may arise. The instability might lead to turbulence, or to a new nonlinear flow, which itself can become unstable. Hydrodynamic stability is therefore of fundamental importance in almost all branches of fluid mechanics, from engineering flows to geophysical flows to physiological flows. This course introduces the mathematical methods used to study such instabilities, and describes the physical consequences of these instabilities in a variety of contexts.

The course is aimed primarily at postgraduate students working in areas of applied mathematics, but should also be of interest to engineering and physics students. A feature of the course is that physical demonstrations of fluid instabilities will be available to help students appreciate the phenomena they will be studying. The lecture courses will introduce, with minimal pre-requisites, a range of techniques, from the application of basic criteria for instability, to advanced asymptotic methods, including both linear and nonlinear analysis. The emphasis will be on gaining insight through analytical approaches, but supplemented by some numerical methods as well.

The course titles and lecturers are:

- **Shear Layer Instability:** Jonathan Healey (Keele University)
- **Geophysical Fluid Dynamics:** Richard Hewitt (Manchester University)
- **Pattern Formation in Fluid Flows:** Anne Juel (Manchester University)

Each course comprises five lectures; problem sheets will be provided, to be discussed with the lecturers and assistant tutors during tutorial sessions. In addition, there will be Invited Lectures given by Trevor Stuart FRS (Imperial College), Jon Chapman (Oxford University) and Peter Thomas (Warwick University).

The registration fee is £100, which for all UK-based research students includes the cost of course accommodation and meals. Participants must pay their own travel costs. EPSRC-supported students can expect that their registration fees and travel costs will be met by their departments from the EPSRC Doctoral Training Account that is paid to universities with each studentship award.

Application forms may be obtained from Isabelle Robinson, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (robinson@lms.ac.uk) or from the LMS website (www.lms.ac.uk/activities/research_meet_com/short_course/14_app.html).

Numbers will be limited and those interested are advised to make an early application. The closing date for applications is **Friday 18 April 2003**.

ANALYSIS AND PROBABILITY ON FRACTALS

LMS/EPSRC Short Course

University of St Andrews, 30 June - 5 July 2003

Organisers: K J Falconer, L Olsen and B Stratmann

There has been a tremendous interest in fractals since the early 1980s. Much has been done of a geometric measure theoretic nature, with fractals studied as geometric entities in their own right, or used as geometrical descriptions of phenomena in the sciences. In the last few years, there has been a change in direction, with an increasing emphasis on the interaction of fractals with mathematical analysis and probability. For example, there are now several approaches to defining differential operators such as the Laplacian on fractal domains, leading to theories of linear and non-linear PDEs on fractals. Again, the interaction between fractals and conformal geometry has lead to the recent dramatic proof that the exterior boundary of Brownian motion in the plane has Hausdorff dimension 4/3. A wide range of new techniques are being introduced to enable traditional analytic problems to be addressed in the context of highly irregular sets, and these are likely to provide significant tools in future research.

This course will aim to present three contemporary areas at the interface of analysis and probability and fractal geometry, at a level that can be appreciated by research students. The topics to be covered will be of particular interest to those working in mathematical analysis, differential equations, probability and in some areas of applied mathematics or theoretical physics. The course will take place in the atmosphere of a traditional 'St Andrews Colloquium' in an environment in which mathematics and relaxation both flourish.

There will be three courses of lectures:

- **Diffusions and Heat Equations on Fractals:** Professor Martin Barlow (University of British Columbia)
- **Random Fractals:** Professor Yuval Peres (Jerusalem and Berkeley)
- **Random Planar Curves:** Professor Wendelin Werner (Paris-Sud)

There will be other related talks and tutorial back up to the courses. Further details of the programme may be found on www.mcs.st-and.ac.uk/~colloq/

The registration fee is £100, which for all UK-based research students includes the cost of course accommodation and meals. Participants must pay their own travel costs. EPSRC-supported students can expect that their registration fees and travel costs will be met by their departments from the EPSRC Doctoral Training Account that is paid to universities with each studentship award.

Application forms may be obtained from Isabelle Robinson, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (robinson@lms.ac.uk) or from the LMS website (www.lms.ac.uk/activities/research_meet_com/short_course/15_app.html).

Numbers will be limited and those interested are advised to make an early application.
The closing date for applications is **Friday 9 May 2003**.

TOPICS IN ALGEBRAIC GEOMETRY

LMS/EPSRC Short Course

University of Bath, 15-19 September 2003

Organiser: G.K. Sankaran

Algebraic geometry occupies a central place in modern pure mathematics, with connections to number theory, theoretical physics and differential geometry in particular. For example, elliptic curves and modular curves play vital roles in arithmetic; startling advances in the theory of higher-dimensional varieties and moduli spaces have emerged from, and contributed to, physics; and the theory of real 4-manifolds has similarly interacted with complex algebraic surfaces. One of the most influential problems for computer algebra has been to carry out explicit calculations in algebraic geometry.

Within algebraic geometry, there has been great progress over the last few years. The study of algebraic varieties of dimension three and more, initiated by Mori and others in the 1970s, has reached an advanced stage. Major results have been proved in enumerative geometry, especially on moduli spaces. The geometric meanings contained in resolutions of ideals (syzygies) have been much better explained and can be applied very directly, often with computer assistance.

In part because of its many connections, algebraic geometry is often seen as being hard to learn, and is left in the hands of specialists. This course will try to broaden the appeal of the subject by presenting three different topics at a level suitable to graduate students in algebraic geometry but in a style accessible to those working in related fields.

The course will take place at the University of Bath, within easy reach of the city of Bath.

There will be three courses of lectures:

- **Vector bundles:** Dr Peter Newstead (Liverpool)
- **Abelian varieties:** Dr Gregory Sankaran (Bath)
- **Higher-dimensional geometry:** Dr Alessio Corti (Cambridge)

There will be tutorial support for the courses, and workshops on other related topics. Further details of the programme may be found on www.bath.ac.uk/~masgks/ShortCourse

The registration fee is £100, which for all UK-based research students includes the cost of course accommodation and meals. Participants must pay their own travel costs. EPSRC-supported students can expect that their registration fees and travel costs will be met by their departments from the EPSRC Doctoral Training Account that is paid to universities with each studentship award.

Application forms may be obtained from Isabelle Robinson, London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (robinson@lms.ac.uk) or from the LMS website (www.lms.ac.uk/activities/research_meet_com/short_course/16_app.html)

Numbers will be limited and those interested are advised to make an early application. The closing date for applications is **Monday 8 July 2003**.

ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES

HEWLETT PACKARD DAY

Monday 2 June 2003

Recent Activity on Numerical General Relativity
in association with the Newton Institute programme entitled
Nonlinear Hyperbolic Waves in Phase Dynamics and Astrophysics
(27 January - 11 July 2003)

10.00 – 11.00	J.M. Stewart (Cambridge) *The Geroch reduction and axisymmetry in numerical relativity*
11.00 – 11.30	Coffee
11.30 – 12.30	I. Hawke (Golm) *Recent progress in numerical relativity at the AEI: Binary black hole inspiral and merger*
12:30 – 13:30	Lunch at the Newton Institute
14.00 – 15.00	J.M. Marti (Valencia) *Recent advances in numerical RHD and RMHD with applications in Astrophysics*
15:00 – 15:30	Tea
15:30 – 16:30	Ed Seidel (Golm) TBA
16:30– 17:30	Wine Reception

Anyone interested is welcome to attend. Please let Tracey Andrew at the Institute know by **19 May 2003** if you intend to come, to help us plan for lunch (tel: 01223 335984; fax: 01223 330508; email: t.andrew@newton.cam.ac.uk).

There are limited funds available to assist research students to attend, please apply by **19 May 2003** to Tracey Andrew at the Institute. Scientific enquiries may be addressed to Professor P.G. LeFloch (lefloch@cmap.polytechnique.fr).

ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES

RANDOM WALKS IN RANDOM ENVIRONMENT

(18-22 August 2003)

Supported by The European Science Foundation (ESF) through its project
"Random Dynamics in Spatially Extended Systems"

in association with the Newton Institute programme entitled
Interaction and Growth in Complex Stochastic Systems
(21 July - 19 December 2003)

Organisers: Erwin Bolthausen (Zürich University) and Alain-Sol Sznitman (ETH Zürich).

Theme of conference: Much is now known on models of random walks in a symmetric random environment. This leads to a diffusion-type behaviour with effectively a non-random diffusion matrix. The phenomena of effective self-averaging for random walks in a symmetric random environment is closely related to the homogenization problem for second order elliptic operators with random coefficients. Most results in this area were obtained in 1980s. However, the general asymmetric case of a random walk in a random environment cannot be treated by similar techniques, and remains largely open in more than one dimension. There has recently been considerable progress in particular concerning random walks in random environment with ballistic behaviour and large deviation principles for random walks in random environments. But many questions are still open. For instance, it is still not known whether for large enough perturbations one can get non-diffusive behaviour for high dimension. Also, almost nothing is known rigorously in the two-dimensional case.

Of considerable interest are also random walks in a random potentials. Here, if the potential is time independent, the asymptotic behaviour can be non-diffusive, and particles move to a 'trap' where they stay for a long time. At the same time, the important case of a time-dependent potential is much less understood, although there are interesting recent developments.

Some closely related topics are: Random walks in random sceneries, directed polymers in random environments (which are connected with a wide class of growth models), and aging phenomena.

Speakers include: M. Barlow (British Columbia); I. Benjamini (Weizmann); J-P. Bouchaud (Saclay); F. Comets (Jussieu); Th. Delmotte (CNRS); B. Derrida (ENS, Paris); N. Gantert (Karlsruhe); I. Goldsheid (QMW); F. den Hollander (Eurandom); D. Ioffe (Haifa); H. Kesten (Cornell); P. Mathieu (Marseille); F. Merkl (Leiden); S.A. Molchanov (North Carolina); V. Sidoravicius (Rio de Janeiro); Ya G. Sinai (Princeton); S. Volkov (Bristol); O. Zeitouni (Minnesota); M. Zerner (Stanford).

Location and cost: The workshop will take place at the Isaac Newton Institute and accommodation for participants will be provided in single study bedrooms with shared bathroom at Wolfson Court. The workshop package, costing £375, includes accommodation, breakfast and dinner from dinner on Sunday 17 August until breakfast on Saturday 23 August, and lunch and refreshments during the days that lectures take place.

Further information and applications forms are available from the web (www.newton.cam.ac.uk/programs/IGS/igsw02.html). Completed application forms should be sent to Tracey Andrew, Isaac Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH or via email (t.andrew@newton.cam.ac.uk). Closing date for the receipt of applications is **31 March 2003.**

SOCIÉTÉ MATHÉMATIQUE DE FRANCE

Mathematics is an international adventure and mathematicians are used to cooperating with other specialists from all around the world. We maintain close links with colleagues from far removed countries, but sometimes we should consider also strengthening our ties with geographically closer neighbors. For us, members of London Mathematical Society (LMS) and Société Mathématique de France (SMF), who live in neighbouring countries, it is clear that we should know each other better and interact better. The aim of the present message is to introduce SMF to the members of the LMS.

The SMF

Société Mathématique de France was created in 1872 by Michel Chasles, who happened to be the first French member of the London Mathematical Society. He became the first president, elected for one year. In the first issue of the *Bulletin*, the statutes claim that the purpose of this new learned society is to promote the progress of science and to propagate the studies of pure and applied mathematics. This is to be done by the activities of the society and the publication of the memoirs of its members.

Our society was created to serve as a tie between French mathematicians, quite a small almost family-size community at that time. The number of mathematicians working in France now exceeds 5000 and our society includes around 2000 members.

Publications

One important goal of SMF, from the beginning, has been mathematical publication. In 1873, just one year after SMF was created, the first issue of the *Bulletin de la Société Mathématique de France* appeared. Now, besides the paper version, an electronic version of the *Bulletin* is available for subscribers to the printed issues. Since 1964 the *Bulletin* has been completed with a supplement, the *Mémoires*, devoted mainly to monographs. *Astérisque*, created in 1973 on the occasion of the first centenary of the French Mathematical Society, publishes monographs as well as proceedings of big international conferences and Bourbaki seminars. The *Revue d'Histoire des Mathématiques* was founded in 1995. Further series include *Panoramas & Synthèses* (survey monographs at a high level), *Cours Spécialisés* (courses at the graduate level for doctoral students) as well as *Séminaires & Congrès*, the electronic version of which is freely accessible on the web site. *Documents Mathématiques* has just started: one of the first volumes, published in 2001, includes the correspondence between Grothendieck and Serre and has been quite successful; an agreement for an English translation has just been signed between SMF and the American Mathematical Society. Besides these series, sporadic volumes have been published by SMF, in particular a re-edition of the Bourbaki Seminars from 1948 to 1968. Our society is now the main publisher in France for mathematical books and journals at a high level, mostly in French. However, we have now an agreement with the AMS for translation and distribution of some monographs: this is the series *SMF/AMS Texts & Monographs*.

Meetings

We have a "Journée Annuelle" one Saturday in the middle of June, where the official yearly General Assembly takes place, followed by scientific activities featuring three or four lectures on a topic of general interest. For instance, in 2001 the topic was "Mathématiques et Mathématiciens au XXème siècle", in 2002, the theme was "Mathematical Biology", while for 2003 it will be "Groupes et Géométrie".

This annual meeting gives us also the opportunity every second year to attribute the *d'Alembert Prize* of SMF which is awarded to a work which raises public awareness of mathematics. In 2002 we also awarded the *Prix Anatole Decerf 2002* of the *Fondation de France* whose aim is to promote the pedagogy of mathematics. Three years ago we celebrated World Mathematical Year 2000 by awarding four special prizes *Prix d'Alembert*

des Lycéens for lectures presenting actual mathematics within the reach of high school students. Given the success it had, we may repeat it in 2004.

Every year SMF organizes two "sessions de la recherche"', where specialists on a given subject introduce the state of the art to other mathematicians and to graduate students. Some of these lectures are published afterwards in *Panoramas et Synthèses*.

We run a number of international conferences with other learned societies: in Lyon (July 2001) with AMS, in Nice (February 2003) with EMS (European Mathematical Society) and SMAI (Société de Mathématiques Appliquées et Industrielles), in Toulouse (July 2004) with SMAI again, SFdS (Société Française de Statistique), CMS (Canadian Mathematical Society) and CSS (Canadian Statistical Society).

Education

The school teaching programme deserves the attention of professional mathematicians, but it is also important to introduce mathematics on a lighter basis to high school students: this is the goal of a number of associations created or supported by SMF, like *Animath* and *Math en Jeans*, where young people enjoy their free time by doing mathematics.

Every year the Committee for Education of SMF runs a meeting to study the current situation, and we keep contact with organizations such as APMEP (Association des Professeurs de Mathématiques de l'Enseignement Public), an Association of High School Mathematics Teachers and UPS (Union des Professeurs de Spéciales).

CIRM in Luminy

Mathematicians need to work together, either in small groups, or by participating in conferences, which is why SMF created the CIRM (Centre International de Rencontres Mathématiques) in Luminy in 1981. This is an Oberwolfach-like institute — the superb surrounding of the Black Forest being replaced by the proximity of the Mediterranean Sea and the Calanques — and the main idea is the same, namely to offer to mathematicians the best possible conditions for working together. See the article below for more details.

Relations with other learned societies

I mentioned the SMAI, which was founded in 1983 by a group of French applied mathematicians. Our two societies have close links, and a number of joint activities are taking place. One of them, also with SFP (Société Française de Physique) is towards cooperation with developing countries, where our three societies just created a joint committee "Sciences de Base et Coopération" for that purpose. France hosts the CIMPA (Centre International de Mathématiques Pures et Appliquées) which organizes schools in many developing countries and our societies support its activity. Lack of funds for this institution is always the main difficulty, despite the support of UNESCO.

A booklet called *Explosion des Mathématiques* was released in July 2002 thanks to the joint efforts of SMF and SMAI; the goal is to promote mathematics to a wide audience. You may download it free from the SMF server.

Nowadays communication plays an essential role in all circumstances. For communication inside the French mathematical community, the *Officiel des Mathématiques* (freely available on the web site of SMF since 1998) provides information on seminars every month, and our Gazette *des Mathématiciens* (already mentioned) is analogous to the LMS *Newsletter*: it gathers information on different topics of interest for our members.

Our website http://smf.emath.fr displays further information on our Society, with a directory of members, on-line order forms for books and journals, information concerning our publications, conferences, meetings, and much more. Our address is: Société Mathématique

de France, Institut Henri Poincaré, 11 rue Pierre et Marie Curie, 75231 Paris cedex 05, France (email: smf@dma.ens.fr).

Our two societies, SMF and LMS, have reciprocity agreements. We welcome members of LMS to join SMF as reciprocity members.

Michel Waldschmidt
Président de la SMF

CIRM

The Centre International de Rencontres Mathématiques (CIRM), situated in Luminy, Marseille, hosts a number of conferences every year in mathematics and related fields (theoretical physics, computing, AI, information theory, mathematical biology, etc.). CIRM offers conference rooms, standard video and specialized computing facilities. Its mathematical library is the biggest in the south of France (70,000 volumes).

CIRM is located on the Luminy Campus, between the city of Marseille and the summer resort of Cassis. CIRM can house up to 80 people and its restaurant serves about 90 guests. The dimension of CIRM is international, but also regional, as it plays a prominent role within the universities and research institutes in the Marseille area.

The first purpose of CIRM is to welcome one-week scientific gatherings of 30 to 60 people; the duration of such a CIRM conference is typically one week. It is possible to organize longer meetings, thematic schools for example. There is also another programme (which started in 2001) of the type "Research in Teams", with the possibility of offering scientific and housing facilities for small research groups.

Every year CIRM welcomes approximately 10,000 visitors-days, and about 50 conferences in the domain of mathematics and related fields. Financial support for conferences can be obtained from CIRM, after the decision of Scientific Council that meets twice a year. This support takes the form of a number of free CIRM-days (typically 40% of the total number of CIRM-days used by a given conference). The address is: CIRM, Case 916, Luminy, 13288 Marseille, France (tel: + 33 4 91 83 30 22, http://www.cirm.univ-mrs.fr/).

Robert Coquereaux
Directeur de la CIRM

FELIX KLEIN
DE MORGAN MEDALLIST 1893

Extract from the President's address on 10 November 1893: "To indicate Professor Klein's claim to distinction by dwelling upon individual subjects which he has treated would be wanting in proportion and perspective. Great as is the reputation which he has acquired in connection with particular branches of mathematical research, that which would seem to be his especial merit is the comprehensiveness of his view and the uniformity of his treatment. For him the study of one of his special subjects is the study of all, the binding influence being the theory of discrete groups, a theory he has made his own."

DIARY

APRIL 2003

5 SECANTS, Royal Holloway, University of London (314)

26 Integrable Models, Conformal Field Theory and Related Topics, York University (314)

MAY 2003

1 LMS Popular Lectures – D. Acheson & M. du Sautoy, Manchester University (314)

2 Scottish Algebra Day, Edinburgh University (314)

9-10 Stochastic Analysis Seminar, Hull University (314)

13 Partial Differential Equations and Computational Material Science, LMS Spitalfields Day, INI, Cambridge (314)

16-17 Groups in Galway, National University of Ireland (314)

JUNE 2003

2 Hewlett Packard Day, INI, Cambridge (314)

1-8 Derived Categories and Applications Meeting, Edinburgh University (314)

JULY 2003

1 LMS Popular Lectures – D. Acheson & M. du Sautoy, London (314)

28 – 2 Aug International Congress on Mathematical Physics 2003, Portugal (314)

AUGUST 2003

18-22 Random Walks in Random Environment Conference, INI, Cambridge (314)

28 – 5 Sep Non-Commutative Aspects of Number Theory Conference, Durham University (314)

SEPTEMBER 2003

15-19 Topics in Algebraic Geometry, LMS/EPSRC Short Course**,** Bath University (314)

16-25 Singularity Theory and its Applications Meeting, Sapporo, Japan (314)

NOVEMBER 2003

23-27 Remarkable Delta ’03 Conference, Queenstown, New Zealand (314)

DECEMBER 2003

8-12 Stochastic Methods in Coagulation and Fragmentation EuroWorkshop, INI, Cambridge (314)

Change following entries to (314)

MAY 2003

6 British Women in Mathematics Day, De Morgan House, London (314)

14-17 LMS Midlands Regional Meeting & Workshop, Uncertainty Modelling, Coventry University (314)

JUNE 2003

22-27 Hydrodynamic Stability Theory LMS/EPSRC Short Course, Keele University (314)

30 – 5 July Analysis and Probability on Fractals LMS/EPSRC Short Course, St Andrews University (314)

AUGUST 2003

24-30 Dirichlet Forms and Related Stochastic Analysis, M. Fukushima: LMS Invited Lectures, University of Wales, Swansea (314)

28-5 Sep Non-Commutative Aspects of Number Theory Conference, Durham University (314)