

MATHEMATICS AND STATISTICS



NEWSLETTER



Winter 2011

CONGRATULATIONS

- Congratulations to Jonathan McDougall-Bagnall who successfully defended his Ph.D. thesis entitled 'Generation problems for finite groups'.
 - Congratulations to Louise Smy, who successfully defended her Ph.D. thesis entitled 'Transport and critical layer mixing in the troposphere and stratosphere'.
 - Congratulations to Duncan Mackay on being awarded a Leverhulme Trust Research Grant of £116,863 entitled 'Simulating Large Scale Solar Magnetic Fields : Applications to Space Weather'.
 - Congratulations to Ruth King, who has been awarded £10,000 to hold a workshop on 'Statistical Advances in Modelling Animal Movement Data' via the EPSRC Strategic Partnership Funds awarded to the University of St Andrews. The workshop is scheduled to be held at CREEM in June 2012.
 - Congratulations to Glenna Evans and Peter Nightingale on their recent wedding in St. Lucia.
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WELCOMES & GOODBYES

- Welcome to Antony Overstall who has joined the Statistics Division as a research fellow, working with Ruth King on the MRC-funded strategic grant 'Incidence, Prevalence, Harms and Intervention Effects for Problem and Injecting Drug Use: Crime, Morbidity and Mortality'. Antony is based at CREEM.
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SEMINARS, LECTURES & CONFERENCE TALKS

- Ineke De Moortel attended the European Solar Physics meeting (held in Rhodes, 12th - 16th September) and the Hinode 5 meeting (Boston, 11th - 14th October). At both meetings she gave a talk '3D Simulations of Multiple Coronal Loop Oscillations: where is all the energy?'
- Xavier Perrot attended the 'Fluxes and structures in fluids: Physics of geospheres' conference in Vladivostock from September 27th - 30th. He spoke on 'Stability of vortices in 3d QG Model with boundary conditions'.
- From October 6th - 9th Mikael Vejdemo-Johansson attended the SIAM Applied Algebraic Geometry meeting. He gave one conference talk and organised one session.

- From October 10th to November 2nd Mikael Vejdemo-Johansson made various research visits in the US. He visited the University of Pennsylvania, University of Texas and Texas A&M, as well as Dartmouth University and Stanford University. He gave lectures at three of these universities on ‘Point clouds of varieties and persistent homology’, as well as a colloquium at Dartmouth and a talk on ‘The Mayer-Vietoris spectral sequence’ at Stanford.
- Kenneth Falconer gave a seminar at the University of Birmingham in early November.
- In November David Borchers gave an invited talk at the biannual meeting of the Acoustical Society of America in San Diego. The talk was part of a session on Acoustic Methods for Monitoring Endangered Species and concerned new statistical methods for passive acoustic surveys of visually cryptic species. David is developing methods in collaboration with ecologists in South Africa and acousticians at the Sea Mammal Research Unit, with funding from the National Geographic Society, in order to provide a cost-effective means of estimating abundance of terrestrial animal populations that are difficult or impossible to survey by other means. As part of the project, the methods will be used to estimate the abundance of a number of endangered frog species found only on isolated mountaintops in South Africa.
- On 3rd November Monique MacKenzie and Eric Rexstad presented a talk entitled ‘Spatially explicit wind farm impact assessment’ at the offices of Scottish Natural Heritage in Battleby at their Sharing Good Practices in Marine Renewables conference.
- Mike Todd travelled to the University of Tuebingen during reading week in November for a research visit hosted by Amos Koeller. He also gave a seminar entitled ‘Transience in dynamical systems’ to the analysis group there.
- Clare Parnell was in Washington DC from the 7th-11th November at an ATST Science working group meeting. She also attended the 2nd ATST-EAST workshop and presented a talk on ‘The nature of 3D reconnection during flux emergence’.
- Roland Langrock and Ruth King were each invited to present a talk at the inaugural meeting between the International Biometric Society (British and Irish Region) and the British Ecological Society on ‘Advances in the analysis of animal movement’ on the 9th November at Charles Darwin House in London. Roland spoke on ‘A non-exhaustive overview of animal movement models’, while Ruth spoke on ‘A tale of two case studies’.
- On 10th November, Sophie Huczynska visited the University of Bristol, where she gave the Combinatorics Seminar.
- Mike Todd gave a seminar entitled ‘Recurrence statistics in dynamical systems’ in Bristol on 17th November. He also had some good research discussions with the ergodic theory and dynamical systems group there, particularly with St Andrews graduates Thomas Jordan and Andrew Ferguson.
- On November 22nd, Mikael Vejdemo-Johansson talked on ‘Topological data analysis’ in the University of Edinburgh Geometry and Topology seminar.
- In November and December, David Dritschel gave seminars at the Department of Meteorology in the University of Reading, and at the School of Mathematics in Imperial College London. He also spent four days in Reading working on a new computational model for weather forecasting.

- On December the 2nd Janine Illian gave a seminar at the Institute of Biological and Environmental Sciences, University of Aberdeen. On December 14th she gave another seminar at the British Trust for Ornithology in Thetford.
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RESEARCH VISITS & VISITORS

- Nik Ruskic visited Vince Vatter (a former postdoc at St Andrews) at the University of Florida, Gainesville, and gave a talk entitled ‘Generating direct powers’.
 - From September 26th -27th Mikael Vejdemo-Johansson attended the Parallel Tools workshop in Dresden.
 - Rachel McCrea (University of Kent) visited Ruth King and Hannah Worthington from 27th -29th September.
 - In October Janine Illian visited Haavard Rues group in Trondheim Norway and participated in the 4th Trondheim Symposium in Statistics, October 14th -15th in Selbu. She also gave a talk Norsk institutt for naturforskning, NINA while there. In November Janine spent two weeks in Tromsø, Norway, visiting Sigrunn Sorbye.
 - José Joaquin Bernal (Murcia, Spain) visited Alexander Konovalov from October 8th -16th.
 - Max Neunhöffer, Alexander Konovalov and Reimer Behrends visited the Singular team at the University of Kaiserslautern, Germany, on November 14th -18th.
 - Between the 14th and 28th November, Stan Gunar from Astronomical Institute of the Academy of Sciences of the Czech Republic visited Duncan Mackay to carry out collaborative research on radiative transfer in solar prominences.
 - From November 21st -25th Mikael Vejdemo-Johansson hosted Primoz Skraba, a recently hired tenure-track faculty member at the Jozef Stefan Institute in Ljubljana, Slovenia. They are collaborating on a number of projects, and spent the visit finishing up a submission to the 2012 Symposium on Computational Geometry.
 - The Analysis Group had pleasure in welcoming Professor Julien Barral from Université Paris Nord (Paris 13) in December for research discussions and to give a talk to the Group.
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WORKSHOPS, SUMMER SCHOOLS & EVENTS ORGANISED

- As the first venue for the new LMS/NZMS Aitken Lecture Series, the School was delighted to host the first-ever Aitken lecture, given by Prof Geoff Whittle from the Victoria University of Wellington. This formed part of the Scottish Combinatorics Afternoon on 6th October, which also included a lecture by Einar Steingrímsson (Strathclyde). The local organisers were Sophie Huczynska and Max Neunhöffer. The audience comprised mathematicians and computer scientists not just from St Andrews, but from as far afield as Dundee, Glasgow and even Amsterdam. It also included at least one person who had been taught by Prof Aitken as a student at Edinburgh University!
- Ineke De Moortel, together with Antonia Wilmot-Smith, organised lots of solar activities for the family fun days at the Dundee Science Festival. Quite a few of the solar Ph.D. students and postdocs went along on Sunday 30th October and 13th November to inspire even the youngest space enthusiasts with stories, satellite glueing, videos, talks etc.

- Stuart King, Xavier Perrot, Yue-Kin Tsang, Dan Lucas and Hanna Plotka from the fluids group also organised activities at the family fun days on Sunday 30th October and 13th November at the Dundee Science Festival. The children were particularly excited by the rotating tank and the vortex ring generator.
- CREEM organised a workshop on Recent Developments in Cetacean Survey Methods at the 19th Biennial Conference on the Biology of Marine Mammals in Tampa, Florida in late November. The workshop attracted 80 participants, who listened to presentations by Len Thomas (CREEM), Hans Skaug (University of Bergen), Steve Buckland (CREEM), David Borchers (CREEM) and Jay Barlow (Scripps Institution of Oceanography) on recent and current methodological developments and participated in useful panel discussion on the methods. The presentations and a summary of the discussion will soon be available on the CREEM website.

After the Biennial Conference, some members of CREEM (Steve Buckland, Len Thomas, Danielle Harris and Cornelia Oedekoven) stayed on in Tampa to teach a training workshop on distance sampling to around 25 participants.

- Steve Buckland contributed to a workshop in Boston in December, to update US regulators and survey groups on recent developments in the UK in surveying sea mammals and birds that may be impacted by the construction of large offshore wind farms. The workshop took place at the British Consulate in Boston, and was organised by HiDef. HiDef have developed high-resolution video to allow surveys to be conducted from aircraft that fly much higher than is possible with visual surveys, so that disturbance is minimised, and so that surveys can be conducted from aircraft that are safely above the blades of the wind turbines. CREEM and RUWPA have been actively involved in developing the methods used, which have now largely replaced visual aerial surveys of seabirds in the UK. Given the rapid technological developments, such methods are likely to replace many – perhaps most – visual aerial surveys of wildlife (terrestrial as well as marine) in the coming years.
- Kevin Hammond, Alexander Konovalov and Chris Brown went to the 4th SCIENCE workshop in Paris on December 12th -13th. They each gave presentations, entitled respectively ‘A brief overview of the SCIENCE project’, ‘A New Lingua Franca for Symbolic Computation: Easy Composition of Symbolic Computation Software’ and ‘SymGrid-Par: Parallel Orchestration of Symbolic Computation’.

OTHER NEWS

- On 29th November, Ineke De Moortel attended the launch of the RSE Young Academy. The newly elected members all received a shiny certificate and then took part in a provocative discussion led by Shami Chakrabarti and Kenneth Roy.

NEXT ISSUE

Please send material for the next Newsletter to: mcsupdate@mcs.st-andrews.ac.uk