

MATHEMATICS AND STATISTICS NEWSLETTER

Spring 2012

CONGRATULATIONS

- Congratulations to Karen Meyer who successfully defended her Ph.D. thesis entitled, 'A Non-linear Force-Free Field Model for the Solar Magnetic Carpet'. Karen has now joined the Solar Group as a PDRA funded from a three year Leverhulme Trust Research Grant.
- Congratulations to Danielle Harris for successfully defending her Ph.D. thesis entitled 'Estimating Whale Abundance Using Sparse Hydrophone Arrays'.
- Congratulations to James Threlfall who successfully defended his Ph.D. thesis entitled 'Wave Propagation, Phase Mixing and Dissipation in Hall MHD'. James is continuing as a PDRA in the Solar and Magnetospheric Theory Group.
- Congratulations to Nick Owen for defending his Ph.D. thesis entitled 'The Propagation and Damping of Slow Magnetoacoustic Waves in the Solar Atmosphere'.
- Congratulations to Angelika Studeny who successfully defended her Ph.D. thesis entitled 'Quantifying Biodiversity Trends in Time and Space'.
- Congratulations also to Calum Brown who successfully defended his Ph.D. thesis entitled 'Spatial Patterns and Species Coexistence: Using Spatial Statistics to Identify Underlying Ecological Processes in Plant Communities'. Many additional congratulations to Calum and his wife Penelope who became the happy parents of Lillian Grace on May 27th.
- Congratulations to Yuan (Joyce) Yuan for successfully completing her PhD entitled 'Estimating Anglerfish Abundance from Trawl Surveys, and Related Problems'. Joyce remains at CREEM working as a PDRA within the NCSE.
- Congratulations to Daniel Lucas who successfully defended his Ph.D. thesis entitled 'A Highly Adaptive Hybrid Vortex Method for Inviscid Flows and Helically Symmetric Vortex Equilibria' and began work as a PDRA with Prof. Kerswell at the University of Bristol.
- Congratulations to Victor Maltcev, who defended his Ph.D. thesis on 'Topics in Combinatorial Semigroup Theory' in February.
- Congratulations to Keith Grady for successfully defending his Ph.D. thesis on 'Solar Flare Particle Acceleration in Collapsing Magnetic Traps'.
- Congratulations to John O'Connor and Edmund Robertson who were both awarded the Comenius Medal by the Societas Comeniana Hungarica (The Hungarian Comenius Society) for their contributions to education, particularly with the MacTutor History of Mathematics Web Archive.
- Congratulations to Roland Langrock who was awarded the Florenz-Sartorius prize (1000€) for his doctoral thesis on hidden Markov models by the Faculty of Economic Sciences at the University of Göttingen.

- Congratulations to Jonathan Fraser on being awarded an EPSRC Doctoral Prize fellowship for 2013-14.
 - Many congratulations to Max and Anja Neunhoeffer, who had a son, Phil, born 8th May 2012.
 - Congratulations to Michael Vejdemo-Johansson who won EC/FP7 funding to visit Stockholm.
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WELCOMES & GOODBYES

- Welcome to the summer students in all research groups. We wish them a productive and enjoyable time over the summer.
 - Welcome to Grant Hopcraft who joins CREEM as a PDRA working with Ruth King, Len Thomas and Roland Langrock for analysing telemetry data of migratory animals within the Serengeti.
 - Goodbye to Lorenzo Milazzo who has been working as a PDRA in CREEM for the last 3 years and all the best to him in his new position as a PDRA at the University of Cambridge.
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SEMINARS, LECTURES & CONFERENCE TALKS

- Michael Vejdemo-Johansson attended the Joint Mathematics Meetings in Boston, organising a special session there.
- Michael Vejdemo-Johansson visited Schloss Dagstuhl for a workshop, giving a talk there.
- Roland Langrock gave an invited talk ‘Animal movement modelling: overview of approaches and an example application to multiple bison movement paths’ at the Durham statistics seminar series.
- Roland Langrock also gave a talk entitled ‘Flexible hidden Markov-type modelling of the eruption inter-arrival times of the Old Faithful geyser’ at the Young Statisticians’ Meeting in Cambridge.
- Lars Olsen and Kenneth Falconer both gave lectures at the conference on ‘Logic, Dynamics and their Interactions’ at the University of North Texas. The meeting was to celebrate the work of analyst Dan Mauldin, who was Lars’ Ph.D. supervisor and a collaborator of Kenneth. After several days with the temperature in the mid-30s, a torrential storm cooled the air down to almost Scottish levels!
- Ruth King presented a seminar at National Records of Scotland (formerly General Register of Scotland), Edinburgh in January relating to estimating hidden population sizes using multiple administrative data lists.
- Kenneth Falconer gave a seminar at the University of York in early March.
- On 13rd March, Thomas Neukirch gave a seminar talk to the St. Andrews Astronomy Group with the title ‘Collapsing magnetic traps and solar flare particle acceleration’.

- On 14th March Lars Olsen gave a very successful Professorial Inaugural Lecture on ‘Fractals, Multifractals and Dimensions’ with a full house and some members of the audience sitting in the aisles.
- Nic Ruskuc attended the AAA83 conference in Novi Sad, Serbia in March. He gave an invited talk on ‘Generating direct powers’
- In April, Mike Todd attended the Warwick conference: Ergodic Theory and Dynamical Systems: Perspectives and Prospects.
- Tara Brough attended the Young Researchers in Mathematics, Bristol, 2nd-4th April and the NBSAN Meeting, Manchester, 11th April.
- Mike Todd was invited to a Workshop on Non-uniformly Hyperbolic and Neutral One-dimensional Dynamics held at the Institute for Mathematical Sciences (IMS) in Singapore from 23rd - 27th April. He gave a talk entitled ‘Transience and thermodynamics for a class of infinitely branched maps’.
- Many of the solar group attended the UK National Astronomy Meeting between the 27th - 30th April. In particular Thomas Neukirch presented two posters, and Duncan Mackay gave an invited review talk on ‘Solar Magnetic Fields’.
- Duncan Mackay attended the 8th Solar Orbiter/EUI consortium working group meeting at Mullard Space Science Laboratory between the 14th -16th May.
- On 1st May, Mike Todd gave a talk entitled ‘Statistical properties of transient dynamical systems’ in the analysis seminar at the University of Edinburgh.
- Mike Todd was invited to speak at a workshop at the University of Groningen, Extreme events in chaotic systems with applications to the weather, from 7th -10th May. He spoke on ‘Clustering of rare events in dynamical systems’.
- Nic Ruskuc gave a talk on 15th May at the Open University on ‘Permutations and words’.
- From 21st -24th May, Mike Todd attended the ICMS workshop: CANPDE - Dynamics in infinite-dimensions: ergodic theory and PDEs.
- Stefanie Eminger, Liz Rudge, Colin Campbell, John O’Connor and Edmund Robertson attended the conference ‘History of Mathematics and Teaching of Mathematics’ in Srospatak, Hungary from 23rd to 27th May 2012. All were invited speakers: Stefanie, ‘Viribus unitis! shall be our watchword: the first International Congress of Mathematicians, held 9-11 August 1897 in Zurich’; Liz, ‘P.G. Tait’s schoolboy introduction to complex numbers’; Colin, ‘The Outreach of the Education Committee of the Edinburgh Mathematical Society’; John, ‘Oliver Byrne’s multicoloured Euclid’; and Edmund, ‘James Gregory - Regius Professor’. In addition to a full lecture programme, there were several enjoyable social events including a medieval dinner in Sárospatak castle and a wine tasting at a local Tokaji winery.
- Thomas Neukirch gave talk with the title ‘Influence of an atmospheric layer with non-negligible pressure on MHS equilibria’ at the UKMHD Meeting 2012 (University of Sheffield, 24th & 25th May).
- In May the Workshop on Semigroups (To remember John M. Howie on the occasion of his 76th birthday), was held in Lisbon. Yann Peresse, Alex McLeman, Rachael Carey, Jenni Awang and James Hyde attended. Tara Brough and Markus Pfeiffer attended and gave talks on ‘Green’s relations on semigroups with rational word problem’ and ‘Exploring the

smallsemi GAP Library' respectively. While Nic Ruskuc and James Mitchell attended and gave invited lectures on 'Ranks of Semigroups' and 'The citrus package for GAP' respectively.

RESEARCH VISITS & VISITORS

- Michael Vejdemo-Johansson visited Colorado State University of a joint research project, giving a seminar there.
- Nic Ruskuc visited Lisbon, Portugal; to work with Robert Gray, a former St Andrews undergraduate and Ph.D. student.
- Nic Ruskuc also visited the University of Otago, Dunedin, New Zealand, in January, to work with Mike Atkinson (former head of school here at St Andrews) and Michael Albert.
- In March Mike Todd spent three weeks in Chile, primarily visiting collaborators in the Catholic University in Santiago (PUC). He gave a talk on transience in dynamical systems there, as well as a talk at the Catholic University in Valparso (PUCV) entitled 'Thermodynamic formalism for wild attractors'.
- Peter Jupp spent March in New Zealand. He gave talks in Wellington, Auckland and Dunedin. In Auckland he worked with Rachel Fewster, who did her Ph.D. with Steve Buckland and is now a habitual visitor to CREEM.
- In March, Marina Cortes from Columbia University, New York, visited Janine Illian to work with her on the spatial properties of the Amazonian understory plant *Heliconia acuminata*.
- Mike Todd was visited by Ana Cristina Freitas and Jorge Freitas, collaborators from the University of Porto, from 24th March to 3rd April.
- Ruth King and Hannah Worthington visited Rachel McCrea at the University of Kent from March 26th -29th . While they were there Ruth presented a statistics seminar at the university.
- Professor A Sri Ranga from Universidade Estadual Paulista in Brazil visited John McCabe for a week in the School in May. He is a former Research Student, 1980 - 83, and whilst here he gave a talk.
- Duncan Mackay visited Queens University Belfast on the 21st -22nd May to collect data from a joint observing program using ROSA operating on the Dunn Solar Telescope, NM, USA.

WORKSHOPS, SUMMER SCHOOLS & EVENTS ORGANISED

- In January, Sigrunn H. Srbye (University of Troms, Norway) and Finn Lindrgen (University of Trondheim, Norway) visited Janine Illian. Together they ran a three day workshop entitled 'Spatial modelling with INLA') at CREEM. The workshop was fully booked with 39 national and international participants.

NEXT ISSUE

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