School of Mathematics and Statistics 
Newsletter

November 2015

Congratulations to …

• John O’Connor and Edmund Robertson who received the London Mathematical Society Hirst Prize at the Annual General Meeting of the London Mathematical Society on Friday 13th November. The prize was awarded for their creation, development and maintenance of the MacTutor History of Mathematics website. MacTutor History of Mathematics website.

• Janine Illian and husband Claus on the adoption of a beautiful baby boy, Olly. We wish Janine, Claus and Olly every happiness. Janine is on maternity leave until Semester 2.

Recent Visitors

• Davide Ravotti (University of Bristol) visited Sascha Troscheit from 29 November until 2 October and talked at the Pure Postgraduate Seminar about his work on time-changes for homogeneous flows.

Meetings Organised

• Several researchers of SMRU and CREEM participated in the Sea Mammals and Sonar Symposium in St Andrews at the end of October. This international symposium gathered existing knowledge on the effects of naval sonar on marine mammals and the implications of scientific results for the development of mitigation measures. All presentations can be found in pdf versions at http://www.tno.nl/smss

Conferences and Visits

• Nik Ruskuc visited University of Colorado at Boulder, to continue his joint work with Peter Mayr. While there he gave two talks, at the algebra and logic seminars.

• Martyn Quick visited Cambridge and gave a talk ‘New presentations for R. Thompson’s group V’ on his work with Collin Bleak at the Algebra Seminar in the Centre for Mathematical Sciences.

• Collin Bleak and Casey Donoven both gave talks at the conference ‘Geometric and Probabilistic Methods in Group Theory and Dynamical Systems’ at Texas A&M University, 9-12th November.

• Colin Campbell attended the Autumn Council Meeting and a Symposium of the UKMT (UK Mathematics Trust) in Birmingham from 30th October to 1st November. Colin is a member of the Council of UKMT, which organizes national mathematics competitions and other mathematical enrichment activities for 11-18 year old school pupils.
• Alan Cairns, Colin Campbell and Isobel Falconer attended the meeting ‘Inspiring Brilliance: Celebrating Maxwell’s Genius and Legacy’ at the Royal Society of Edinburgh on 9th November. As well as marking the 150th anniversary of the publication of Maxwell’s equations, the meeting explored how Maxwell’s work continues to impact on modern society, and included a talk by Peter Higgs on how generalizations of Maxwell’s equations have become the basis of understanding for interactions among elementary particles.

• Colva Roney-Dougal gave an LMS Popular lecture entitled ‘Party Hard – The Maths of Connections’ in Glasgow on 21st October. Colva was also a panelist on the Radio 4 programme ‘In Our Time’ on ‘P vs NP’ on 5th November.

• Markus Pfeiffer attended the conference in Princeton from November 2nd-5th, to mark the 30th anniversary of the Atlas of Finite Groups, and to honour John Conway, see http://math.arizona.edu/~grouptheory/princeton/ Markus also attended the Sage Days 70 in Berkeley, California, from November 9-13th 2015, http://wiki.sagemath.org/days70.

• James Mitchell, Michael Torpey, Wilf Wilson, Steve Linton, Alexander Konovalov and Chris Jefferson attended the First CoDiMa Training School in Computational Discrete Mathematics in Manchester, organised by the CoDiMa project, during the week November 16-20th, see http://www.codima.ac.uk/school2015/. James, Alexander and Chris gave lectures and Alexander taught a Software Carpentry lesson on GAP; the lesson may be found at http://alex-konovalov.github.io/gap-lesson/

• Magda Carr gave an invited lecture at a small and dedicated workshop funded by the Irish Research Council on ‘Nonlinear Waves in Stratified Flows’ held on 5-6th November at the University of Limerick. Magda thanks the University’s caring fund for supplementing her IRC funding to enable her to attend the event.

• On 21st October, Ineke De Moortel gave a seminar in Birmingham on ‘Transverse, propagating velocity perturbations in coronal loops’. She also gave a Physics Colloquium in St Andrews on 23rd October.

• Ben Stevenson gave an invited talk at The Wildlife Society Annual Conference, held in Winnipeg, Canada, 17th-21st October. He spoke on ‘Spatial capture-recapture methods for acoustic detection data’.

• During the week 19th-23rd October, Rosemary Bailey visited the Instituto Superior de Engenharia de Lisboa, where she continued her research with Célia Fernandes and Paulo Ramos on sparse designs for the estimation of variance components.

• Rosemary Bailey is a member of the Fisher Memorial Trust, which organizes various activities in memory of R.A. Fisher (some members of the committee regard him as a statistician, others as a geneticist). These include a not-quite annual Fisher Memorial Lecture. On 28th October, the 34th lecture was given by Professor Peter McCullagh of the University of Chicago. He spoke about ‘Empirical phenomena and universal laws’ at the Mathematical Institute in Oxford. See http://www.senns.demon.co.uk/FisherWeb.html

• Rosemary Bailey is also a member of the External Advisory Board for the research consortium IDEAL (Integrated DEsign and AnaLysis of small population group trials). This is funded by an European FP7 grant, and has groups in Austria, Belgium, France, Germany, Luxembourg, Poland and Sweden. The two-day annual meeting was held in Leuven on 5-6th November. The interaction between the various groups, and between the PhD students and the more established researchers, was really exhilarating. Rosemary gave a talk on ‘Design of dose-escalation trials’.

Other News

• Stephen Buckland will be taking over as Editor of the Journal of Agricultural, Biological and Environmental Statistics from December.
• Peter Cameron, and coauthors João Araújo and Ben Steinberg have very recently posted on the arXiv a 108 page paper on synchronizing groups which presents connections between a range of topics from automata theory to representation theory to computational complexity. Peter’s blog
https://cameroncounts.wordpress.com/2015/11/11/the-synchronizing-monster/ claims that solving these problems will ‘help the princess escape from the pirates’! (The picture is from Pirates of Pangaea, by Daniel Hartwell and Neill Cameron.)

Future Events

• Public Lecture Planets and Pulsations: The New Keplerian Revolution by Prof. Don Kurtz, Friday 27 November 2015 at 5.30pm, Medical Sciences Building Lecture Theatre.

One of the biggest questions humans can ask is, ‘Are we alone?’ Does Earth harbour the only life in the universe? A first step is to find other planets like the Earth where conditions are similar to home. The Kepler Space Mission has done this, having discovered over 4600 planets orbiting other stars. It has found entire solar systems orbiting other stars and even planets orbiting double stars: Yes, Luke Skywalker's fictional home planet Tatooine really does exist! The Kepler mission measured the brightnesses of nearly 160,000 stars for four years, giving a view 100 times more precise than is possible from the ground. Exotic stars have been discovered, and astrophysics that used to be purely theoretical is now also observational. This talk introduces the concepts of asteroseismology and shows a selection of results in a multi-media performance of science, animations and the physics of music and the stars. The speaker is a co-author of the fundamental textbook, ‘Asteroseismology’ and Vice-President of the Royal Astronomical Society.

Next Issue

• The next edition of the School Newsletter will be circulated in mid-December. Items for inclusion may be sent to schoolnews@mcs.st-andrews.ac.uk at any time but a reminder will be sent out a week before the deadline.