

# School of Mathematics and Statistics

## Newsletter

May 2017

### *Congratulations...*

- to Sascha Troscheit who successfully defended his PhD thesis entitled ‘Dimension Theory of Random Self-similar and Self-affine Constructions’ on 11th April.
- to Esther Jones who successfully defended her PhD thesis ‘Spatial Ecology of Marine Top Predators’ on 19th April.
- to André Python, working jointly in our School and the School of International Relations, who successfully defended his PhD thesis entitled ‘Modelling the Spatial Dynamics of Terrorism: World Study, 2002-2013’ on 21th April.
- to Haakon Bakka, based in the Statistics Group at the Norwegian University of Science and Technology and with Janine Illian as an external supervisor, who successfully defended his PhD thesis ‘Modeling Spatial Dependencies using Barriers and Different Terrains’ on 31st March.
- to Oliver Allanson, who was runner up for the IMA Lighthill-Thwaites prize, an international prize for young applied mathematicians awarded at the *British Applied Mathematics Colloquium (BAMC) 2017* meeting at the University of Surrey on 12th April. The assessment was based on the paper by Oliver Allanson, Thomas Neukirch, Sascha Troscheit and Fiona Wilson, ‘From one-dimensional fields to Vlasov equilibria: theory and application of Hermite polynomials’, published in the Journal of Plasma Physics in 2016, together with a presentation at the BAMC.

### *Welcome...*

- to Kathy Ruggiero from the University of Auckland who is visiting Rosemary Bailey during May and June to work on the design and analysis of multi-phase experiments.

### *Farewell...*

- to Sascha Troscheit who has just left us to take up a two year Postdoctoral Fellowship at the University of Waterloo in Canada. Over the past 3½ years Sascha has played a lively part in the School, with his research sometimes extending beyond his thesis topic to inject some rigour into our applied mathematicians! He has given numerous talks on his work both in St Andrews and elsewhere, as well as organizing a range of activities for fellow postgraduates. The saga of life on his (not always sea-worthy) sailing boat has provided much entertainment for us over the past year!

### *Public Engagement*

- Patrick Antolin gave a talk in French about his research on coronal rain, entitled ‘Un jour de pluie sur le Soleil’ at the French Consulate in Edinburgh on 28th March. This talk is part of the Café Scientifique informative discussion talks on research in science, which usually take place every month in Glasgow and are organised by Nicolas Labrosse from the University of Glasgow, see <https://tinyurl.com/kfqsmfh>

### *Visitors*

- Bob Gray visited Nik Ruskuc from 10-12th April and gave a talk at the Pure Mathematics Colloquium. Bob was a St Andrews undergraduate and research student at St Andrews, taking his PhD in 2006 and is now a Senior Lecturer at the University of East Anglia in Norwich.

## ***Conferences Organized***

- The *Third Scottish Combinatorics Meeting* on 24-25th April was hosted by Sophie Huczynska and Nik Ruskuc. Rosesmary Bailey was one of the invited speakers and Matt McDevitt also gave a talk. Other invited speakers included Robert Brignall, who gained his PhD in St Andrews PhD in 2007 and who now works at the Open University, as well as being our Subhonours External Examiner. Following the meeting, Robert stayed from 26-28th April to collaborate with Nik on well quasi ordered-ness of pattern classes of permutations. Another invited speaker, Maura Paterson from Birkbeck, University of London also stayed from 26-28th April to work with Sophie on external difference families and related topics.

## ***Visits and Conferences***

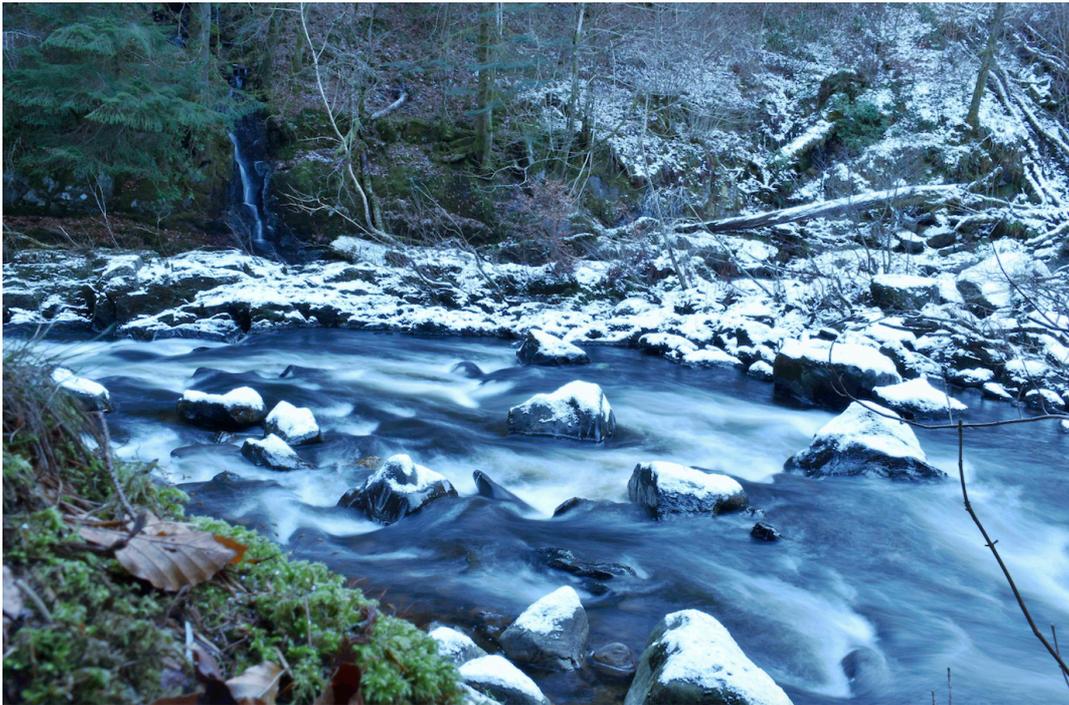
- Mike Todd attended the *Ergodic Theory, Algorithms and Rigorous Computations* conference at the University of Warwick on 3rd-7th April, at which he gave a talk entitled ‘Slow/fast mixing/escape’.
- Thomas Neukirch and Alan Cairns attended the *44th IOP Plasma Physics Conference* at Worcester College, Oxford, from 3rd-6th April. Thomas gave the opening invited lecture ‘Some remarks on collisionless current sheet equilibria’ and presented a poster on ‘Exact Vlasov-Maxwell equilibria for asymmetric current sheets’ (first author Oliver Allanson and co-authored by Jonathan Hodgson, Fiona Wilson, together with Yi-Hsin Liu from the NASA Goddard Space Flight Centre). Alan was a co-author on oral presentations given by younger collaborators as he was again when he attended another conference in Prague.
- Jean Reinaud gave a talk in the Geophysical Fluid Dynamics session of the BAMC 2017 held in Guildford at the University of Surrey.
- Magda Carr gave an invited talk and chaired a session at a workshop on *Long waves and Tsunamis* at the Discovery Point in Dundee sponsored by the Royal Society of Edinburgh on 19th April.
- David Dritschel gave a seminar at Newcastle University on 28th April on ‘The Moist Parcel-In-Cell Method’, a new computational approach to modelling moist convection and clouds.
- In the last week of March, Rosemary Bailey attended two meetings at the European Medicines Agency in London. The workshop on 27th March was to discuss the EMA’s proposed revision to their document ‘Guidelines on strategies to identify and mitigate risks for first-in-human clinical trials with investigational medicinal products’. Rosemary was there to represent the Royal Statistical Society, in her capacity as one of the authors of the RSS’s response to the published proposed revision. The workshop on 29-30th March was about *FP7 Small-population research methods projects and regulatory application*, reporting some of the outcomes of three very successful pan-European research projects funded under FP7 (the EU 7th Framework Programme for Research and Technological Development) including IDEAl (Integrated DEsign and AnaLysis of small population group trials) of whose advisory board she is a member.
- Michael Papathomas gave an invited talk at the *6th Channel Network Conference 2017* of the International Biometric Society (IBS), in Hasselt, Belgium, 24-26th April, with the title ‘Exploring the dependence structure between categorical variables: Benefits and limitations of using variable selection within Bayesian clustering’.
- Vincent Schott (a final year joint honours Maths and Economics undergraduate) gave a paper at the British Society for the History of Mathematics conference *Beyond the Academy: The Practice of Mathematics from the Renaissance to the Nineteenth Century* in York on 6th April. He gave a talk ‘The Mathematics of James Dodson behind the Founding of the Equitable [Life Insurance] Society’ which was based on his Honours project on the same topic, and which was very well received. Isobel Falconer also attended the conference and chaired the first afternoon.
- Louis Theran is visiting is visiting Orléans in May to discuss percolation problems with Julie Barré.

## ***Grants***

- Magda Carr has been awarded a Hydralab+ grant to study ‘Internal waves in the marginal ice zone’. The grant will provide access to a laboratory ice facility in the Hamburg Ship Model Basin, HSVA, Hamburg. The laboratory is cooled to Arctic temperatures so that experiments that replicate field temperatures can be performed. Magda will lead a collaborative team from Bergen, Max Planck Institute, Oslo, Brest and the University of East Anglia.

## ***Other News***

- Again this year Magda Carr ran a photography and movie competition for her level 4000 Fluid Dynamics students. The photography winner was Callum Fairbairn, with Shiyu Rao runner up and Eilidh MacIver third. Tishtrya Mehta won the video section, followed by Holly Scott-Riddell and Anna MacMahon.



*Callum Fairburn's winning long time exposure picture of the River Brann at the Hermitage, near Dunkeld, which captures the streamlines of the flow*

## ***Future Events***

- There will be a *Special Lecture* ‘Maxwell and the Mechanical Origins of Maxwell’s Equations’ by Professor Malcolm Longair, at 10.30am on 23rd June in Physics Lecture Theatre A. Professor Longair, a former Astronomer Royal for Scotland and now at the Cavendish Laboratory in Cambridge, will receive an Honorary DSc at our graduation ceremony in the afternoon, and all staff as well as graduating students and their families are warmly invited to come along to the lecture.
- The *5th Scottish PDE Colloquium* will take place from the 8-9th June 2017 in St Andrews, see <http://www.mcs.st-and.ac.uk/~spdec17/> The topics of the meeting are broad (anything related to PDEs is fair game) and the organisers Shekar Venkataraman and Tommaso Lorenzi would like to encourage all those interested to attend or even present a poster.

## ***Next Issue***

- The next edition of the School Newsletter will be circulated in June. Items for inclusion may be sent to [schoolnews@mcs.st-andrews.ac.uk](mailto:schoolnews@mcs.st-andrews.ac.uk) at any time but a reminder will be sent out a week before the deadline.