

# School of Mathematics and Statistics Newsletter

February 2019

## ***Congratulations...***

- to Steve Buckland on being awarded the *Guy Medal in Gold* from the *Royal Statistical Society* for his significant and sustained contributions to the development of statistical methods for ecological applications over a period of more than 40 years.
- to Jonathan Hickman on being appointed lecturer in mathematics at the University of Edinburgh from August 2019.
- James Threlfall for his designation as *Most Valued Reviewer 2018* for the journal *New Astronomy*.

## ***Welcome...***

- to Nikos Sfakianakis who started as a new lecturer on 1st February. Nikos' research interests are mathematical biology, numerical analysis, scientific computing and computational modelling.
- to Danny Otero from Xavier University, Cincinnati, who is visiting us until mid-April. Danny is developing a historical approach to teaching mathematics in higher education.

## ***Visitors***

- Masayuki Henmi from the Institute of Statistical Mathematics, Tokyo, and Hiroshi Matsuzoe from Nagoya Institute of Technology visited Peter Jupp for a week to continue work on information geometry.

## ***Visits and Conferences***

- The annual *Postgraduate Interdisciplinary Mathematics Symposium* was held at the Burn near Edzell from 30th January to 1st February. Many PhD students from the school were there, as well as invited speakers Jonathan Hickman, Michael Torpey and Ben Williams. Chrissy Fell won the Best Talk prize for a live demonstration of training a neural net made up of human beings.



- Jean Reinaud visited Imperial College London on 25th January where he gave a seminar entitled ‘Thomson’s vortices in a three-dimensional quasi-geostrophic flow: A (small) step further to understand pattern formation on Jupiter’s poles’.
- Craig Johnston and Patrick Antolin attended and presented their work at the second International Space Science Institute (ISSI) Team Meeting on *Observed Multi-scale Variability of Coronal Loops as a Probe for Coronal Heating*, held in Bern, Switzerland from 21st-25th January. This meeting was organised by Clara Froment (University of Oslo) and Patrick and gathered about 10 experts around the topic of thermal non-equilibrium in coronal loops. The meeting was entirely funded by the International Space Science Institute (ISSI) and was a wonderful opportunity for intense discussion and collaboration, see the ISSI Team website <http://www.issibern.ch/teams/observecoronloop/>
- Tom Elsdén visited the *Centre for Fusion, Space and Astrophysics* at the University of Warwick on 4th February, giving a seminar entitled ‘3D Alfvén Resonances in Earth’s magnetosphere’.
- Nik Ruskuc visited James East at the Western Sydney University from 7-25th January, and gave an invited talk at the *Asia Australia Algebra Conference* entitled ‘Diagram monoids and their congruence lattices’.
- Nayab Khalid gave an invited talk titled ‘Conjugacy and Dynamics in Rearrangement Groups’ at the *Algebra (Maximals) Seminar* at Heriot-Watt University on 23rd January. Former St Andrews undergraduate Alex Levine, now a PhD student at Heriot-Watt, was the other speaker at the seminar. Several people from St Andrews (Raad Al Kohli, Jim Belk, Collin Bleak, Luke Elliot, Collin’s visitor Julio and Jim’s visitor Justin) made the journey to attend both talks.
- Jonathan Hickman gave a talk at Coláiste na hOllscoile Corcaigh = University College Cork on 12th February entitled ‘On convergence of Fourier integrals’.
- Mike Todd visited Mark Demers in Fairfield, Connecticut from 28th January-8th February to collaborate on a project on dynamical systems with holes. He also visited another collaborator, Aníbal Velozo, at nearby Yale, and on the way home spent an afternoon in mathematical discussions at City College New York, the following day giving a talk on ‘Stability of Measures in Interval Dynamics’ at the CUNY Graduate Center.
- David Borchers visited the University of Cape Town for two weeks in February, to work with Res Altwegg and Linda Haines and colleagues at the *Centre for Statistics in Ecology and the Environment*. The trip was funded by a Leverhulme Fellowship. Whilst in Cape Town he gave a seminar on joint work with Richard Glennie, entitled ‘A Hidden Markov Model for Open Population Spatial Capture-recapture’.

- Linnéa Franßen was invited to speak at the TakeAIM Awards Ceremony at Imperial College London on 5th February. As she had other work commitments in St Andrews, she prepared a video to present her public outreach work and research in cancer modelling instead. A big ‘thanks’ to Fiona for assisting with the filming!

*Linnéa’s video talk at Imperial College*



- Len Thomas and Tiago Marques attended *GoMOSES (Gulf of Mexico Oil Spill and Ecosystem Science) 2019* in New Orleans, where they presented work on modelling the recovery (or lack thereof) of marine mammals from the Deepwater Horizon oil spill, had a series of long project meetings, and took in some hot jazz.
- Han Yu visited Meng Wu at the University of Oulu and Antti Kaenmaki at the University of Eastern Finland from 2nd-11th February. Han was shocked to discover that the sea was frozen! During the stay Han gave two seminar talks. He celebrated the Chinese new year with Meng Wu and his family, for which Han's fiancée, Sydney, prepared many delicious traditional Chinese dishes.

*Chinese New Year celebration food with Han*



### **Grants**

- David Borchers and Mark Johnson (Biology) were awarded an EPSRC Impact Acceleration Account small grant of £2,500 to implement a noise-cancelling acoustic recording system on a drone that has been developed by PhD student Filippo Franchini and which will be field-tested for surveying gibbons in Laos and/or Indonesia later this year.
- Isobel Falconer, Edmund Robertson and John O'Connor have been awarded £9,865 from the EPSRC Impact Acceleration Fund for migration of the MacTutor Biographical Database of Mathematicians onto an up-to-date content management platform. They are currently advertising for a student with extensive Python experience to carry the work out over the summer.

### **Public Engagement**

- On 2nd February Fanny Empacher, Catriona Harris, Danielle Harris, Laura Marshall and Cornelia Oedekoven, ran a research stand as part of an event organised by the St Andrews School of Earth and Environmental Sciences *Life without the wolf: the future of threatened and endangered species*. They ran activities relating to blue whale acoustics and estimating abundance at this event which focused on threatened and endangered animals.

### **Other News**

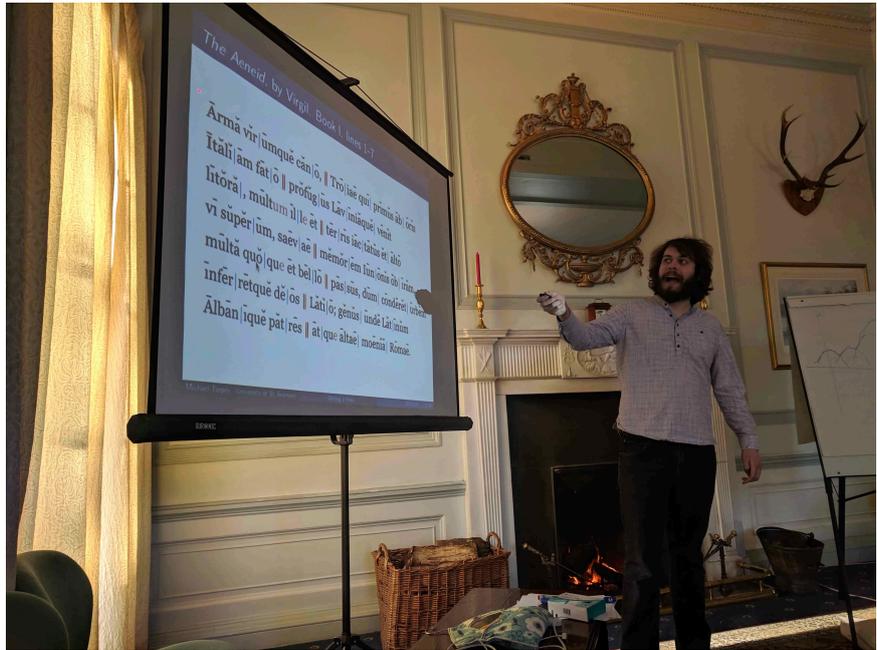
- The School's *Research Day* took place on 24th January when some 19 members of the School gave short talks on their research. There were also about a dozen posters on display during the breaks. The day concluded with wine and nibbles in the staff room. Thanks to all those who took part and in particular to Mike Todd for organising the day.

### **Future Events**

- Danny Otero (Xavier University, Cincinnati) will be give a talk at 4pm on 21st February in Lecture Theatre A of the Mathematical Institute, on 'Transforming Instruction in Undergraduate Mathematics via Primary Historical Sources'.

## ***Caption Competition***

Captions are invited for this picture of Michael Torpey talking about his thesis on the postgraduate trip to the Burn. Send your ideas to [schoolnews@mcs.st-andrews.ac.uk](mailto:schoolnews@mcs.st-andrews.ac.uk) The best suggestions may be included in the next Newsletter.



## ***Next Issue***

- The next edition of the School Newsletter will be circulated in March. 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.