

School of Mathematics and Statistics Newsletter

December 2023

Congratulations to ...

- Fanny Empacher on successfully defending her PhD thesis ‘Efficient methods for fitting nonlinear non-Gaussian state space models of wildlife population dynamics’, on 21st November.
- Victor Velasco Pardo on successfully defending his PhD thesis ‘Statistical underpinning of mutational signature analyses of cancer sequencing data’, on 12th December.
- CREEM who have been given a *Special Recognition Award* from the *Biometrics Working Group of the Wildlife Society*. The award recognises groups or individuals who have made an outstanding contribution to the development and application of quantitative methods to the fields of wildlife science and management.

Welcome to ...

- Fergus Chadwick who joined us as a Lecturer in Statistics on 1st December and has a special interest in modelling complex observation processes in ecology and epidemiology. Prior to starting here, Fergus completed his PhD at the University of Glasgow and worked for a short period at *Biomathematics and Statistics Scotland (BioSS)*.

Visitors

- Mark Holland from the University of Exeter visited Mike Todd and the Analysis Group for the week of 13-17th November to work on recurrence problems in dynamical systems. He also gave a talk in the Analysis Seminar ‘On dynamical Borel-Cantelli lemmas and recurrence’.
- Victoria Gould from the University of York is visiting Nik Ruskuc and Matthew Brookes from 11-15th December to continue their joint EPSRC funded work and, in particular, their paper on coherent monoids of transformations. Victoria, Nik and Jung Won Cho will continue their work on residual finiteness of graph products (also involving Dandan Yang from Xidian University, China).
- Jaume Terradas of the Universitat de les Illes Balears, Spain, is visiting Thomas Neukirch from 11-15th December 2023 to continue their collaboration on 3D MHD equilibria and their stability. Jaume will also give a seminar during his visit.

Conferences, Talks and Visits

- Giorgos Minas visited the *MRC Biostatistics Unit* of the University of Cambridge from 4-6th December. He gave a seminar at the unit on ‘Unravelling the mechanisms and decision-making logic of biological systems’. A recording should soon be available to the social media of the unit. He met with several researchers of the unit to discuss common research questions.



At the North British Semigroups and Applications Network at York

- On 17th November, Jung Won Cho, Reinis Cirpons, Matthew Brookes, Murray Whyte and Maria Tsalakou attended the 35th meeting of the *North British Semigroups and Applications Network (NBSAN)*, held at the University of York. Cho gave a talk entitled ‘Subsemigroups of the free monogenic inverse semigroup’.
- Colva Roney-Dougal gave invited talks at three conferences in three weeks on her tour of Australia. The first was the *Australian Algebra Conference* at Monash University. Then there was a conference on *Computational Algebra* in Sydney, celebrating 30 years since the first release of Magma. Finally, she gave a plenary lecture and was on a Women in Mathematics panel discussion at the *AustMS Conference*, the annual meeting of the Australian Mathematical Society, in Brisbane.
- Nik Ruskuc returned from his visit to Peter Mayr at the University of Colorado at Boulder on 6th December after a five week stay. Whilst there he gave a talk entitled ‘Semigroup actions and finiteness conditions’ in the hybrid *PALS Panglobal Algebra and Logic Seminar* series.
- Natalia Jurga and Jon Fraser hosted an online *One World Fractals* event on 11th December. The speakers were Disheng Xu (Great Bay University), Adam Spiewak (Mathematical Institute of the Polish Academy of Science - IMPAN), and Silvia Ghinassi (University of Washington). This series of meetings is hosted jointly with the Universities of Bristol and Oulu (Finland).
- Kenneth Falconer is at the *International Conference on Fractal Geometry and Related Topics* at the Chinese University of Hong Kong from 11-15th December where he gave the opening lecture. A number of former St Andrews PhD students and postdocs were at the conference, including Jiixin Hu, Xiong Jin, Jun Miao, Haiping (Clarence) Chen and Jian-Ci Xiao.
- Alex Rutar visited Rajula Srivastava at the University of Bonn from 6-9th December. Whilst there, he gave a talk in the analysis seminar titled ‘Assouad dimension and the local geometry of fractal sets’.
- From 3rd-7th December Ben Swallow visited Université Lyon 1 and VetAgro Sup to teach a workshop on ‘Sensitivity, inference and uncertainty for infectious disease modelling and policy intervention’. He also continued to develop collaborations and PhD co-supervision within the mathematics department. From 12-20th December he is visiting NOVA MATH, Univeristy of Lisbon, to teach the same course and deliver a seminar.

- Isobel Falconer, Deborah Kent and Ursula Martin all attended the *British Society for the History of Mathematics Christmas Meeting* (online) on 9th December.
- On 5th December Collin Bleak participated in the first ever meeting of the *UK Mathematics Knowledge Exchange Hub Congress* as a 'Knowledge Exchange Champion', held at the Aston Conference Centre in Birmingham.

Collin writes 'We met as a body and went through various organisational points, and then we progressed to a further meeting with representatives from Business, Industry, and Government to discuss channels of/for Knowledge Exchange between Academic Mathematics and Statistics and those groups. The meeting overall was lively and interesting, and I believe our School will certainly be able to contribute our expertise to help these groups face inherent Mathematical Challenges. It also seems likely that we will be able to find pockets of external funding for targeted MScs and possibly even PhDs as part of that process.'

Other News

- The *School Research Day* took place on 1st December when staff and research students from across the School presented short talks on their research. Thanks to Mike Todd for organising the event, to Fiona MacFarlane for arranging the refreshments, and to all the speakers.
- The *St Andrews Undergraduate Mathematics Society (SUMS)* Christmas dinner took place at Forgan's on 30th November, attended by 8 staff and about 30 students. As it was St Andrews Day a céilidh band arrived later in the evening and many students and even some staff joined in some of the dances.
- Jon Fraser has been awarded a Research Project Grant from the *Leverhulme Trust*. The grant is for £377,327 and the project will use Fourier analysis to address several problems in analysis and fractal geometry. The project will run from September 2024 for 3½ years.
- Jon Fraser was a member of an EPSRC Fellowships interview panel on 12-13th December. Jon has also been appointed external examiner in analysis at the University of Warwick for four years starting in spring 2024.
- Steve Buckland had a photograph of 'a sparrowhawk confused by an ornamental frog' featured on the BBC website's photo selection, see <https://www.bbc.co.uk/news/uk-scotland-67509422>

Next Issue

- The next edition of the School Newsletter will be circulated in January. Items may be sent to maths-news@st-andrews.ac.uk at any time but a reminder will be sent out a week before the deadline.

**Happy Christmas to everyone
in the School!**