

School of Mathematics and Statistics Newsletter

May 2024

Congratulations to ...

- David Borchers who has been awarded the 2024 *Barnett Award* of the Royal Statistical Society for outstanding contributions to the field of environmental statistics. David has been instrumental in developing new and accessible methodologies in wildlife monitoring and conservation, including mark-recapture, distance sampling and unifying many observation models for detecting and counting animals. Further details may be found in the [full citation](#) and the [University press release](#).
- Liam Stott for the successful defence of his thesis ‘Faithful semigroup diagram representations of homeomorphism groups’.

Welcome to ...

- Olivia Bell who has joined our Teaching Admin Team to cover Lauren Sheppard’s maternity leave.

Visitors

- Jim Davis from the University of Richmond, Virginia, USA is visiting Sophie Huczynska from 8th May-30th June to continue their collaboration on partial difference sets.

Conferences, Talks and Visits

- On 2nd May the School hosted the second and last *Educational Research Seminar* for this academic year. The speaker was Professor Lara Alcock, from the University of Loughborough, who talked about ‘Conditional Inference in Mathematics Students’.
- On 25th April, Rosemary Bailey attended (remotely) the *2nd International Conference on Statistical Theory, Methods and Applications (ICSTMA 2024)* at the University of Nigeria, Nsukka. She gave a talk on ‘Designs on strongly regular graphs’.
- Ben Swallow recently attended a virtual meeting with the *Office for National Statistics* as Chair of the Royal Statistical Society Environmental Statistics Section to provide feedback on the ONS business planning and prioritisation for 2024/25 and the potential impact on their statistical outputs of proposed financial constraints. Feedback will be incorporated into senior management’s strategy.
- Nicolò Margaritella attended the *Summer School on Bayesian Filtering: Fundamental Theory and Numerical Methods* from 6-10th May and the *6th Workshop on Sequential Monte Carlo Methods* from 13-17th May, both at ICMS, Edinburgh, where he presented a poster on his recent work on ‘Estimation of the local True Discovery Rate and its uncertainty with ABC SMC’ (Approximate Bayesian Computation Sequential Monte Carlo).
- Victoria Ironmonger went to the *London Colloquia in Combinatorics* from 8-9th May and presented a poster on ‘The well quasi-order problem for equivalence relations’.



- The annual PhD student trip to the Burn, near Edzell, took place from 26-28th April. Some 27 attendees enjoyed the various talks, walks and games that the weekend had to offer.
- Mike Todd visited the University of Hamburg for 6-10th May to work with colleagues on recurrence problems in dynamical systems as part of a Hamburg–Lund partnership.
- Jon Fraser is currently attending *Madison Lectures in Harmonic Analysis* in Madison, Wisconsin. He gave a talk entitled ‘The Fourier spectrum and applications to exceptional sets’ on joint work with Ana de Orellana. Also attending the conference is Jonathan Hickman, formerly of St Andrews.
- On 7th May, Andy Wright gave the *UK MIST (Magnetosphere-Ionosphere-Solar-Terrestrial)* online seminar. He spoke about the signatures of resonant coupling of magnetohydrodynamic waves in 3D simulations (research completed with Tom Elsdén). These have led to the first identification of this process in satellite data recorded in the magnetised environment surrounding the Earth.
- Giorgos Minas gave a seminar titled ‘Efficient simulation, analysis and inference for large oscillatory stochastic systems’ at the University of Liverpool on 1st May. The talk was part of the *North West Seminar Series of Mathematical Biology and Data Science*, a joint seminar between the Universities of Liverpool, Manchester and Liverpool John Moores.
- From 22nd-27th April, Dimitrios Katsaounis visited *CNRS, Institut de Mathématiques de Toulouse*, to work with Pierre Degond on cancer modelling and analytical techniques for mean field and macroscopic equations. The following week, he visited the *Institute for Cross-Disciplinary Physics and Complex Systems (IFISC)* in Palma de Mallorca, where he gave a seminar ‘Hybrid Mathematical modelling for cancer invasion and metastasis’.
- Alex Stewart gave the keynote talk ‘What can mathematical models tell us about our polarized times?’ at the *Power and Democracy in the Modern World Workshop* at Lund University, Sweden. He also gave an invited talk ‘Thinking about thinking about groups’ at the *TLQS Workshop on the Limits of Collective Agency* at ICTP (International Centre for Theoretical Physics) in Trieste, Italy. Both were highly interdisciplinary events and the organisers had thought carefully about how diverse perspectives and experiences can be made welcome.
- As part of *Books, Objects and Instruments in the History of Science and Culture*, a Special Collections-based event in the Wardlaw Museum on 25th March, Deborah Kent gave a short talk on Sophie Germain that included a Chladni Plate demonstration, with a pattern appearing in the sand on top of the 19th-century plate.

- On 4th April, Deborah Kent was an invited speaker during a special eclipse event in Wooster, Ohio, speaking on ‘Only the shadow knows: insights from historical eclipse expeditions’. The presentation was later featured in a ‘Total Eclipse of Wooster’ video. She was also interviewed for *Quanta Magazine* and quoted in an April article. Deborah also gave a plenary address ‘Mostly in the zone: Mathematics and 19th-century eclipse expeditions’ at the *Mathematical Association of America* meeting in Indianapolis, Indiana, on 5th April. Indianapolis was near the centre line of totality for the eclipse on 8th April and despite gloomy forecasts, the day dawned sunny with clear skies. Deborah was thrilled to experience just over 4 minutes of totality and a corona with spectacular red prominences. On the return to St Andrews, Deborah stopped for a week in Washington, DC, at the Library of Congress, accessing papers of Cleveland Abbe, Simon Newcomb, and the US Coast Survey.



Sunspots not yet eclipsed by the Moon

Other News

- The School held a very successful *Inspiration Day* on 10th May. There were talks as follows: Monique MacKenzie and Lindsay Scott-Hayward on an environmental topic, Ali Johnston on ‘Analytical methods for citizen science data: A revolution in ecology’, Chris Sutherland ‘Informing policy on conservation conflicts’, and Daphné Lemasquier on ‘Fluid dynamics from the lab to the planets: floating vortices and icy moon oceans’.
- In their *Sage Research Methods* series, Sage Publishing have released a video of a three chapter talk by Rosemary Bailey entitled ‘Key mistakes in agricultural and environmental research: the need for statisticians’ as a resource for students and researchers.

Future Events

- The *Scottish Combinatorics Meeting 2024* will be held on 27-28th May at St Andrews. This is the latest in a series of 2-day combinatorics meetings which has been running for several years. See <https://sites.cs.st-andrews.ac.uk/scm2024/> for more details and the full programme.

Next Issue

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