School of Mathematics and Statistics Newsletter

August 2024

Congratulations to ...

• Naici Guo on a successful defence on 29th July of her PhD thesis entitled 'Proteomic studies in cancer: statistical methods, experimental insights, and the challenges of dual proteomics profiles'.

Welcome to ...

• Rui Borges who joined the School as a Lecturer in Statistics on 1st August. Rui received his PhD from the University of Porto in 2017 and since July 2021 has held a group leader position at the Institute of Population Genetics at Vetmeduni (University of Veterinary Medicine), Vienna, where he worked on the evolution of coding sequences with the aim of developing more complex models and methods to study species adaptation.
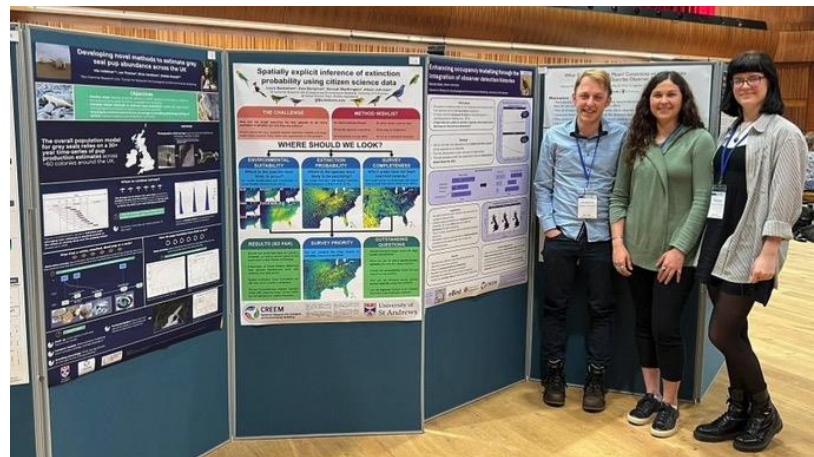
Visitors

• Sofia Brenner (TU Darmstadt) visited St Andrews from 22nd-26th July, to work with Colva Roney-Dougal and Coen Del Valle on bases of primitive solvable groups.

Conferences, Talks and Visits

• There was strong representation from CREEM and the Statistics division at the International Statistical Ecology Conference hosted by the University of Swansea at their Bay Campus from 15-19th July. Over the course of the week Eiren Jacobson, Savannah Rogers, Abinand Reddy Kodi, Yan Ru Choo, Danielle Harris, Tiago Marques, Amber Cowans, Fergus Chadwick, Hannah Worthington and Alison Johnston all presented talks. Also PhD students Louis Backstrom, Rachel Drake and Mia Goldman presented their work in poster sessions. Titles and abstracts for all these talks and posters may be found here. A special mention goes to Chris Sutherland who helped organise and run the conference successfully. In a bid to travel more sustainably the group made it a roadtrip using the University's fleet of vehicles, something we would be happy to repeat and recommend to others.

Louis, Rachel and Mia with their posters

- The biennial *European Conference on Mathematical and Theoretical Biology,* took place from 22nd-26th July at the University of Castilla-La Mancha in Toledo, Spain in 40°C heat. Nikos Sfakianakis co-organised a minisymposium, Dimitrios Katsaounis, Jochen Kursawe, Carey Li and Fiona Macfarlane, gave talks, and Cypres Verbeeck presented a poster. The participants also enjoyed the social activities including an evening walking tour of the old town, a drinks reception and a riverside conference dinner at sunset.

Lunchtime at the theoretical biology conference

- Ben Swallow and Xiahui (Annabelle) Li are visiting the Isaac Newton Institute in Cambridge from 5-30th August, participating in the *Modelling and Inference for Pandemic Preparedness* programme. This started with a week-long workshop (c.95 participants) and is followed by three weeks of focused research (c.35 participants). Ben is co-leading the inference theme of the programme and Xiahui will present her PhD work as part of the early career session of the workshop.

- Jean Reinaud visited the *Institut Universitaire Européen de la Mer* (*IUEM*) at Plouzané, France from 15th-22nd July to continue his long-standing collaboration with Xavier Carton and his team on vortex interactions in the oceans.

- Rosemary Bailey and Peter Cameron attended the meeting *Design and Analysis of Networked Experiments* at King's College London from 17-19th July at which Rosemary gave a talk on 'Designs on strongly-regular graphs' and took part in a panel discussion on 'The future of networked experiments'.
They both also attended the joint meeting of the *Unione Matematica Italiana* and the *American Mathematical Society* in Palermo, Sicily from 23rd-26th July which had around a thousand delegates. They spent most of their time at a special session 'Graphs associated with groups: advances and applications', where Peter gave an invited talk on 'Graphs defined on groups: some interactions'. During the meeting, they met former School President Isabella Scott, who has completed her PhD at the University of Chicago and will soon move to Wellington, New Zealand.

- In July, Collin Bleak attended the American Institute of Mathematics (AIM) workshop *Groups of Dynamical Origin* in Pasadena, California and gave a talk 'Embeddings into finitely presented simple groups' as well as leading a research group studying commutator lengths in the Thompson groups.

- Collin Bleak is attending a conference *Dynamical Group Theory - New Methods in Group Actions on Manifolds* at Korea Institute for Advanced Study (KIAS) in Seoul to talk on 'A smorgasbord of Thompson's groups results'. He also spoke at KIAS's *Virtual Seminar on Geometry and Topology* on 'Some free actions for one-sided shift spaces'.

- Saeed Shaabanian attended the *Workshop on Dynamical Systems: Geometric and Statistical Properties* at the University of Warwick from 15-19th July.

- Isobel Falconer organised a highly successful panel session on 'Translating European Mathematics' at the 9th *European Congress on Mathematics* in Seville, 15-19th July, on behalf of the International Commission on the History of Mathematics. The discussion considered whether claims such as 'Mathematics is a universal language that transcends all cultural boundaries' are compatible with the diversity of European language and practice.

Other News

- Chrissy Fell was a member of the team that came third out of over 40 teams in the recently released results for the *Royal Statistical Society Christmas Quiz 2023*. Do you think you can do better? The questions are still available here for anyone who wants to try (and who has a lot of time to spare – Ed.)!

- David Dritschel reports a mathematical challenge that came up when writing a paper with some colleagues. Consider a cube of side length 1. Consider 3 arbitrary points, represented as 64-bit numbers as in many computer systems. What is the probability that all three points will be equally-spaced (i.e. lie on an equilateral triangle), when (squared) distances are also limited to 64-bit precision? Send solutions to David!

Next Issue

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