

# School of Mathematics and Statistics Newsletter

July 2023

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

- Paul van Dam-Bates for successfully defending his PhD thesis ‘Counting processes for spatial capture-recapture’ in May. Paul is currently working with Perry de Valpine at the University of Berkely developing the NIMBLE (Numerical Inference for statistical Models using Bayesian and Likelihood Estimation) software package and will shortly become a Research Scientist in the Quantitative Assessment Methods Section of the Department of Fisheries and Oceans, Canada.
- Sophie Huczynska and Isobel Falconer who have been promoted to Reader and Professor respectively.

## ***Farewell to ...***

- Tom Howson, who is leaving the Solar and Magnetospheric Theory Group at the end of July to take up a permanent lectureship at Abertay University. Tom has been in St Andrews since 2011, taking an MMath degree followed by a PhD and then Postdoc positions in SMTG. We wish Tom all the best and hope he manages to visit us frequently!

## ***Visitors***

- Michael Giudici from the University of Western Australia visited Colva Roney-Dougal from 26-30th June, to collaborate on a long-running project suggested to them by Peter Cameron and Michael Kinyon.
- Jim Davis (University of Richmond, Virginia) and John Polhill (Commonwealth University, Pennsylvania) visited Sophie Huczynska and Laura Johnson from 26-30th June, to work on a joint project about difference sets and cyclotomy.
- James East, from the Western Sydney University, is visiting St Andrews from 10th July-18th August to work with Nik Ruskuc, James Mitchell, Matthew Brookes and other members of the Algebra and Combinatorics Group.

## ***Conferences, Talks and Visits***

- On 16th June, Rosemary Bailey and Peter Cameron attended some talks at the online 25th meeting on *Combinatorial Configurations and their Applications* in Zaporizhzhia, Ukraine. Our CIRCA colleague Olexandr Konovalov was one of the organisers and also spoke, as did Özgür Akgün, also from Computer Science at St Andrews. Rosemary and Peter then attended a conference *Groups, Rings and the Yang-Baxter Equation* in Corsendonk Duinse Polders, Blankenberge, Belgium, from 19th-23rd June, where Peter gave a talk on ‘Graphs on groups, rings and possibly YBE solutions’.
- Rosemary Bailey, Matthew Brookes, Peter Cameron and this summer’s graduate Marina Anagnostopoulou-Merkouri attended a conference from 2nd-7th July on *Theoretical and Computational Algebra* at the High-Performance Rowing Centre in Pocinho, Portugal. The conference marked the retirement of Gracinda Gomes, who obtained her PhD in St Andrews in 1983, supervised by John Howie. Peter gave a short course on ‘Permutation groups and transformation semigroups’, Rosemary a plenary talk on ‘Designs for half-diallel experiments’, and Matthew a section talk on ‘A method to determine coherency of monoids’.

- David Borchers co-organised (with former colleague Ruth King, now at Edinburgh, and Rachel McCrea at Lancaster) a workshop at ICMS (International Centre for Mathematical Sciences) in Edinburgh from 12-16th June: *Building Interdisciplinary Solutions to Modern Ecological Challenges*. Participants from St Andrews included David Borchers, Danielle Harris, Ali Johnston, Abinand Kodi, Tiago Marques, Cornelia Oedekoven, Yuheng Wang, Hannah Worthington and former St Andrews PhD student Ben Stevenson.



*'Modern Ecological Challenges' participants*

- David Borchers, Yan Ru Choo, Hannah Worthington, Chris Sutherland and Yuheng Wang attended the biennial summer workshop of the *National Centre for Statistical Ecology* (NCSE) in Swansea from 26-28th June. David, Hannah, Chris, Ben Stevenson and Steve Buckland are all now on the Executive Committee of the NCSE.
- Coen del Valle, Scott Harper, Jiaping Lu, Colva Roney-Dougal and Peiran Wu all attended the 2023 *Clay and Heilbronn Institute Summer School* on probabilistic group theory in Bristol, 19th-23rd June. Colva and Scott gave hour-long talks, the others gave speed talks. The many others with connections to St Andrews included former PhD student Veronica Kelsey who gave an hour-long talk, and honorary graduate Cheryl Praeger gave a minicourse.
- Collin Bleak and Colva Roney-Dougal organised the *North British Geometric Group Theory* meeting in St Andrews on 16th June, at which Scott Harper spoke on 'Generating sets for infinite simple groups'.
- Sophie Huczynska attended the *International Conference on Finite Fields and Their Applications (Fq15)* in Paris from 19th-23rd June. She gave a talk on 'Internal and external partial difference families and cyclotomy'. This conference (part of a biennial series since 1991) should have taken place in 2021 but was postponed twice due to the pandemic.
- Jack Southgate is attending the *SIAM Conference on Applied Algebraic Geometry* in Eindhoven from 10-14th July where he presented a talk 'Bounds on Embeddings of Triangulations of Spheres'.
- On 7th July, Isobel Falconer gave a talk 'in' Ecuador at the Universidad San Francisco de Quito to an audience of about 70, on 'Female mathematicians in history – known and unknown'. On 16-17th June she attended and chaired one of the panels at the *Brokering the Enlightenment: Scotland and the World* workshop at Edinburgh University.
- Mike Todd visited Jérôme Rousseau at the University of Rennes from 19th-22nd June. They are working on problems concerning the closeness of orbits of dynamical systems.
- Kenneth Falconer spoke at a workshop *Diophantine Approximation, Dynamics and Fractals* in Exeter from 22nd-23rd June. The meeting celebrated Demi Allen's appointment as a lecturer at Exeter; some will remember Demi as a St Andrews undergraduate from 2010-14.



*St Andrews connected participants at the Fractal Geometry meeting - how many can you name?*

- Jon Fraser, along with our former postdocs Tom Kempton and Xiong Jin (both now lecturers at Manchester), organised a conference on *Fractal Geometry* to mark a significant birthday of Kenneth Falconer, from 3rd-7th July at ICMS (International Centre for Mathematical Sciences) in Edinburgh. There were about 80 participants, over 27 of whom had at sometime worked in St Andrews.
- Dimitrios Katsaounis gave an invited talk in a thematic workshop *Crossing the Borderlines in Fluids and Biology* organised by the Interdisciplinary Centre for Mathematical and Computational Modelling, held at the European Centre for Geological Education, Chęciny, Poland, from 12-16th June. He also participated in the *7th ECCOMAS Young Investigators Conference 2023* in Porto, Portugal from 19th-21st June where he gave a talk on hybrid mathematical modelling for cancer invasion and metastasis as part of a minisymposium. From 3rd-7th July, Dimitrios attended a workshop *Topics in Neuroscience, Collective Migration and Parameter Estimation* at the Oxford Mathematical Institute, where he presented a poster ‘Hybrid Modelling for Cancer Invasion and Metastasis’.
- The Solar group was well-represented at the *National Astronomy Meeting* in Cardiff from 3rd-7th July. Cosima Breu, George Chouliaras, Elisabeth Enerhaug, Tom Howson, Daniel Johnson, Anmol Kumar and Lilli Nadol gave talks, and Harry Callingham, Jonah Klowss and Kate Mowbray presented posters. Ann Vasekar (in person) and Sophie Boswell and Jack Reid (both online) also attended.
- From 10-14th July, Lilli Nadol and Thomas Neukirch are participating (virtually) in an International Space Sciences Institute (ISSI) workshop on *Magnetohydrostatic Modeling of the Solar Atmosphere with New Datasets* organised by the ISSI institute in Beijing. Thomas and Lilli gave talks on *Analytical 3D MHS Equilibria*.

### **Other News**

- At the end of year social event on 28th June, Mark Chaplain was presented with a card signed by many of the School as well as a liquid token of the School’s appreciation of his sterling work as Head of School over the past five years. We look forward to seeing the mathematical biology book that he intends writing during his well-earned sabbatical in the coming year.





- David Borchers, Cornelia Oedekoven and summer student Kit spent much of the first week in July walking around Tentsmuir forest putting up new acoustic recording devices and playing back gibbon calls at 100dB to test the devices. Initial indications are that the recorders do the job well, and better than any existing recorder. Cornelia will be talking about them in Borneo in August and she and Mark Johnston (former SMRU employee who developed the recorders) will do field testing in Laos in November.



- On 15th June, Isobel Falconer, in her role as a trustee of the James Clerk Maxwell Foundation, showed the new Scottish Minister for Culture, Europe and International Development, Christina McKelvie, round 14 India Steet, Edinburgh, the birthplace of James Clerk Maxwell. The Minister showed a keen interest in Maxwell's work and life and in the items displayed in the museum.

### ***Future Events***

- The Algebra and Combinatorics Group will hold a second *Semigroups Day* on 18th July. Information and the timetable will be circulated separately. For details please contact Cho [jwc21@st-andrews.ac.uk](mailto:jwc21@st-andrews.ac.uk) or Nik [nik.ruskuc@st-andrews.ac.uk](mailto:nik.ruskuc@st-andrews.ac.uk)

### ***Next Issue***

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



*The breakout room at ICMS, showing why every self-respecting maths building needs lots of blackboards!*