

School of Mathematics and Statistics Newsletter

August 2022

Congratulations to ...

- Yoav Len who has been awarded an EPSRC New Investigator Award ‘Tropical Geometry and the Moduli Spaces of Prym Varieties’.
- Sophie Huczynska who has been awarded an EPSRC Small Grant ‘New directions in AMD codes over Galois fields and related structures’ which in particular will fund some overseas research visits.
- undergraduate Dan Roebuck who was awarded second prize in the poster competition for Carnegie Summer Vacation Scholars, held at the Royal College of Physicians in Edinburgh on 7th September, for his poster presentation on ‘Topological properties of fractals’.

Welcome to ...

- Ben Swallow who returns to us as a Lecturer in Statistics, specialising in Bayesian inference, particularly in biological and ecological sciences. Ben took his PhD in St Andrews in 2015 and since then has held positions in Bristol, Warwick and Glasgow.
- Daphné Lemasquierier who joins the School as a Lecturer in the Vortex Group. Daphné studied at ENS de Lyon and Aix-Marseille University and then took her PhD at IRPHE in Marseille, with a thesis on Jupiter’s dynamics. She spent the first part of this year at the Institute for Geophysics at the University of Texas at Austin.
- Tom Elsdén, who took his MMath and PhD degrees in St Andrews, and then held postdocs in St Andrews, Leicester and Glasgow, returns to us as a Lecturer in the Solar MHD Group.
- Fiona MacFarlane, who after her BSc in Dundee, came to St Andrews for her PhD followed by a postdoc position in Mathematical Biology. After an RSE Fellowship at Politecnico di Torino, she returns as an Associate Lecturer (Education Focused).
- Spyridon Dimoudis who joins us as an Associate Lecturer (Education Focused), fresh out of his PhD at Heriot-Watt University. Spyridon’s research interests lie in mathematical quantum mechanics and operator theory.
- Scott Harper, who joins us as a Leverhulme Fellow. Scott took an MMath degree in St Andrews, winning numerous School prizes. He went to Bristol for his PhD on group theory, and continued there as a Heilbron Fellow. In 2021 he won the gold medal in Mathematical Sciences in the *STEM for Britain* poster competition held at the Houses of Parliament.
- our new research students: Aimee Bebbington, Georgia Beeton (Mathematical Biology); Sophie Boswell, Jonah Klowss, Anmol Kumar (Solar Theory); Jung Cho, Coen Del Valle, Murray Whyte, Zhongyi Zhou (Algebra); Amber Cowans, Liu Haoyu, Hanyu Wang (Statistics).

Conferences, Talks and Visits

- In early September Ali Johnston gave a public outreach talk as part of the *Science and Nature Conference* at Cambo Gardens organised by Footprint East Neuk.

- Analysis Group members Amlan Banaji, Kenneth Falconer, Natalia Jurga, István Kolossváry, Alex Rutar, and Liam Stuart attended *Fractals and Related Fields IV (FARF4)* from 3rd-9th September on the Ile de Porquerolles, off the southern French coast near Toulon. Natalia gave a plenary talk and chaired a session, Kenneth chaired the opening session, gave the closing lecture, and a vote of thanks at the conference dinner, and Amlan, István and Alex also gave talks. At least eight other participants were former members of the School.



- Saul Freedman, Scott Harper, Colva Roney-Dougal and Peiran Wu attended the summer school *Young Group Theorists Workshop: Exploring New Connections* in Les Diablerets, Switzerland from 4-9th September. Colva gave two talks, on ‘Subgroups of linear groups’ and ‘Generation of finite groups’, Saul spoke on ‘The intersection graph of a finite simple group’ and Scott spoke on ‘The intersection graph of a finite simple group’. Former St Andrews students Veronica Kelsey, Kamilla Rekvenyi and Aluna Rizzoli also gave talks.
- The second of three workshops led by Andy Wright took place in August, hosted by the *International Space Science Institute* in Bern, Switzerland. Andy and Tom Elsdon attended in person, and Rachel Davies participated remotely. All gave talks related to waves in the magnetised environment surrounding the Earth. Switzerland was reassuringly expensive. One evening at a gastropub saw burger and chips costing £30 and a pint of beer £9. Fortunately ISSI covered subsistence expenses!
- Nikolaos Sfakianakis and Dimitrios Katsaounis were co-organisers of a summer school and workshop [Mathematical Biology on the Mediterranean Conference](#) that took place in Crete from 29th August-6th September, hosted by the Institute of Applied and Computational Mathematics at the Foundation of Research and Technology. It is expected that several new collaborations will emerge from these events.
- Isobel Falconer co-organised a two day meeting at the University of Durham on 9-10th September to celebrate 500 years of Cuthbert Tunstall’s *De arte supputandi libri quattuor*, the first book devoted to mathematics to be published in Britain. Participants especially enjoyed touring the 500th-anniversary special exhibition [Tunstall and the Tudors: The Calculating Bishop](#) and also visiting Cosin’s Library. At the meeting, Deborah Kent presented some preliminary work on ‘Mysteries in the margins: Annotations in *De arte supputandi*’.
- Ben Swallow recently visited a collaborator at the Massachusetts General Hospital Biostatistics Division to continue an ongoing research project. He also attended the *Joint Statistical Meeting* in Washington DC, at which he gave a talk on statistical inference in stochastic biological systems. From 12-15th September he attended the *Royal Statistical Society International Conference* in Aberdeen, for which he is a member of the Conference Board, and he also organised two invited sessions on ‘model selection in environmental statistics’ and ‘marine impact surveys’, the latter in conjunction with Lindsey Scott-Hayward.



- Earlier this summer CREEM members organised a local Hub for the *International Statistical Ecology Conference*, held in Cape Town, though it was a hybrid conference. About 30 St Andrews staff and students attended the week, see picture above. It was a great opportunity to take part in the conference from a distance and enabled much greater participation for a relatively low total cost and a hugely reduced carbon budget.
- Steve Buckland was an invited speaker at the *David Anderson Memorial Symposium* at Colorado State University at Fort Collins on 26th August. As a past student of David's, Eric Rexstad also spoke, though virtually. This was a chance to meet up with several past collaborators, including some familiar at CREEM: Jeff Laake, Ken Burnham, Gary White and Rich Guenzel.
- Yoav Len participated in the *Cambridge Summer School on Combinatorial Algebraic Geometry*, from 5-9th September. Yoav delivered a series of four lectures and a problem session on chip-firing games.
- Rosemary Bailey and Peter Cameron attended a conference on *Combinatorics, Computing, Group Theory and Applications* in Deerfield Beach, Florida from 15-20th August, for the 70th birthday of Daniela Nikolova. Rosemary gave a plenary talk on 'From partitions to diagonal structures and beyond', and Peter a plenary on 'Resistance distance and resistance distance transform'. Both were surprised at the number of pairs of delegates who had first met at *Groups St Andrews* meetings!
- Mike Todd visited Chile for two weeks in August. He was primarily based in Universidad Católica in Santiago, working with Godofredo Iommi and Aníbal Velozo, and where he gave a talk on 'Cover times in dynamical systems' in a *Dynamical Day* - a joint meeting of the dynamical systems groups in Santiago. He also visited Pontificia Universidad Católica de Valparaíso (PUCV) where he gave a seminar and had research discussions.
- Jon Fraser gave a talk at the University of Liverpool *Dynamical Systems Seminar* on 7th September entitled 'Dimensions of parabolic Julia sets and Kleinian limit sets'. He also spoke on 'Dimension interpolation in conformal dynamics' on 14th September at the *UK-Japan Winter School on Geometry, Stochastics and Dynamics* held at Imperial College London.
- Deborah Kent spoke about 'Underwater Worlds: D'Arcy Thompson and the building of his zoological collection' at a workshop *Circulation: The History of Natural Resources Place and Space* held at the University of Edinburgh Centre for Research Collections on 1st-2nd September, funded by a Una Europa project *Before Geology: Reclaiming the Cultural Heritage of Europe's Underground Landscape*.

- Alex Rutar gave a talk ‘Geometric and combinatorial properties of self-similar measures’ on 30th August at the *Dynamical Systems Seminar* at Budapest University of Technology and Economics.

Visitors

- Victoria Gould from the University of York visited Nik Ruskuc to continue their joint work on Noetherian properties of monoids, supported by a joint EPSRC grant. Peter Mayr, from University of Colorado Boulder, is also visiting Nik Ruskuc under a Heilbron/EPSRC grant from 3rd-29th September, continuing their investigation into subdirect products in combinatorial algebra.
- In September the Statistical Ecology Group hosted Dr Leah Johnson, Associate Professor in Statistics at Virginia Tech, as a visitor for two weeks.

Next Issue

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