School of Mathematics and Statistics Newsletter

May 2022

Congratulations …

• to Antonia Wilmot-Smith on being awarded the University Students' Association Teaching Award for Outstanding Teacher (Science and Medicine) – this is in addition to her University Teaching Excellence Award that was reported in the April Newsletter. Congratulations also to Nikos Sfakianakis who was shortlisted in the category of Outstanding Academic Mentorship.

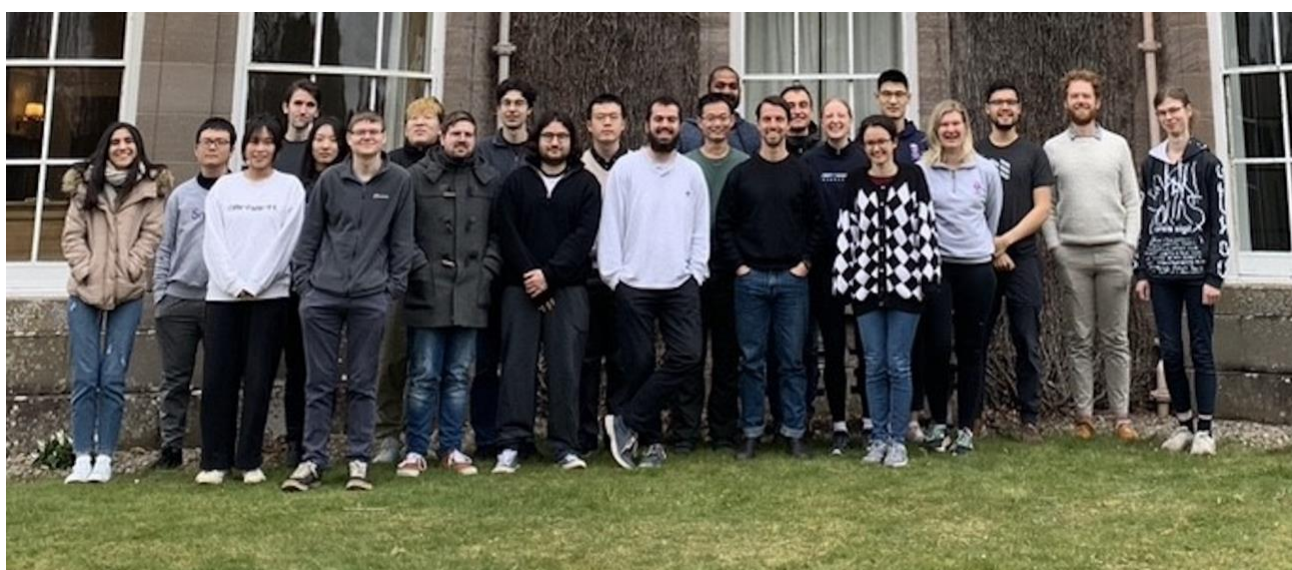

Antonia together with other award winners

Visitors

• Emma-Liina Marjakangas, a postdoc from the Zoology Unit of the University of Helsinki, is visiting Ali Johnston for three weeks to work on methods to analyse bird data.

• Nik Ruskuc and James Mitchell are hosting James East from the Western Sydney University from 10th June to 10th July.

Talks and Visits

• Peter Cameron and James Mitchell spoke in a *Special Session on Recent Trends in Semigroup Theory* at the online American Mathematical Society Spring Western Sectional Meeting on 14-15th May. Peter spoke on 'Complete mappings for semigroups' and James on 'Computing the congruences of a semigroup'.

• At the American Mathematical Society Spring Western Sectional Meeting, Jon Fraser and Lars Olsen gave online talks in the *Special Session on Fractal Geometry and Dynamical Systems* on 14th May. Jon spoke on the 'The Assouad dimension of distance sets' and Lars on 'The Baire hierarchy, multifractal decomposition sets and Π_λ^0-completeness'.

• Several members of the Analysis Group attended the *Workshop on Affine and Overlapping Iterated Function Systems* at the University of Bristol from 10-12th May. István Kolossváry and Natalia Jurga were main speakers, and Kenneth Falconer chaired the 'lightning talk' session which included a talk by Amlan Banaji. Amlan and Alex Rutar also presented posters. Our former PhD student, Sascha Troscheit (now at Vienna) was a main organiser of the meeting which was also attended by several former St Andrews research students and postdocs.

• On 21st April Kenneth Falconer gave an online seminar to the *Fractal Research Group* at the University of California at Riverside.

• Mike Todd visited Mark Demers in Fairfield, Connecticut, for a few days to work on problems in dynamical systems with holes. He also visited City College New York to discuss maths with colleagues there.

• Alex Rutar attended the *Probability, Analysis and Dynamics* conference in Bristol from 6-8th April.

• On 27th April Alan Logan gave a (virtual) seminar at Louisiana State University, as part of their *Topology Seminar Series*. His topic was 'The surface group conjectures'.

- Sophie Huczynska and Laura Johnson attended the *2022 Colloquia in Combinatorics*, held in London jointly by Queen Mary University of London and the London School of Economics, on 11-12th May. This was their first in-person conference since the pandemic and it was great to see colleagues in person. Sophie combined this with a research visit from 10-13th May to Maura Paterson of Birkbeck, University of London, who was a speaker on the second day of the Colloquia.

- Various members of the Algebra and Combinatorics Group and CIRCA attended the *Scottish Combinatorics Meeting* on 4-5th May, hosted online by the University of Glasgow. It is hoped that this will return to an in-person format next year.

- On 25th April, Peter Cameron gave the opening plenary talk at a webinar on *Applications of Machine Learning* at the Central University of Tamil Nadu in Thiruvarur, India. His title was 'Networks, random walks and statistical optimality'. The audience of over 100 consisted mainly of students but also included the Vice-Chancellor, Dean, and Head of Department.

- On 13th May, Kate Mowbray, Thomas Neukirch, Eric Priest and Jack Reid attended an (online) Royal Astronomical Society Discussion Meeting on *Forecasting Solar Energetic Particles and Associated Eruptive Events*. Kate gave a contributed talk entitled 'Particle energisation in collapsing magnetic traps'.

- The special theme of this year's *British Colloquium for Theoretical Computer Science*, held in Swansea on 6-8th April, was the *History of Theoretical Computer Science*. Rick Thomas was one of four keynote speakers and gave a talk entitled 'Some interactions between automata theory and algebraic structures in the UK - A (personal) history'.

- A one day meeting on the *History of Mathematical Analysis*, organised by the British Society for the History of Mathematics, took place on 14th May at Birkbeck College, University of London. Kenneth Falconer gave an invited talk on 'Fractal geometry through the 20th century'. Megan Briers, Isobel Falconer, Deborah Kent, and Boyuan Zhao also attended the meeting.

- For the opening seminar of a *History of Mathematics Series* at Oxford's Mathematical Institute on 11th May, Deborah Kent presented 'Questions of collaboration and credit in D'Arcy Thompson's *On Growth and Form*', based on joint work with final year project student Kirit Dhami. Whilst in Oxford, Deborah accessed materials at the Bodleian Library, in addition to rare books at Jesus College, Hertford College, and Merton College Libraries.

- After a year's hiatus and a postponement from the usual January date, the annual *Postgraduate Burn Trip* was finally back in person, taking place from 11-13th April and attended by 24 PhD students from across the School.

Postgraduate students outside The Burn House

- Megan Briers, who is about to graduate in Mathematics and Computer Science and has worked on a number of projects with the History of Maths group, is spending three weeks visiting archives in London, Cambridge, and Birmingham, examining 19th century manuscripts on gravitation, as part of the St Andrews-Bonn collaborative project on the gravitational constant.

- Alex Stewart gave an invited (virtual) talk on 5th May at the *Misinformation in the Digital Age: Comparative Contexts and Policy Lessons* conference held at the Institute for Advanced Studies in Toulouse (IAST). His talk was titled 'The coercive logic of fake news'.

REF2021

- The REF2021 (Research Excellence Framework) results were published on 14th May. For the record, the scores for our School are shown below. The School's percentage of 4* research increased significantly from the 2014 scores in all sections (Outputs up 11.7%, Impact up 35%, Environment up 7.5%, and Overall up 18%). In particular our impact had the highest rating of all schools in the University. For the full results for all subjects and all universities, see https://results2021.ref.ac.uk

UoA10 Mathematical Sciences	4*	3*	2*	GPA	UK rank
Outputs	26.7%	69.5%	3.8%	3.23	34
Impact	75%	25%	-	3.75	11
Environment	62.5%	37.5%	-	3.63	11
Overall	44%	54%	2%	3.42	18

Other News

- Jon Fraser has joined the editorial board of the *Journal of Fractal Geometry*. He has also been appointed to the 2022 Mathematics Panel of the Swedish Research Council.

- Congratulations to Louise Burt on compleating the Munros on 2nd May when she climbed the Inaccessible Pinnacle in the Skye Cuillin and then continued onto Sgurr Mhic Choinnich, her last Munro. She was with her partner Bill, and they continued along the ridge to Sgurr Alasdair where Bill compleated his fourth Munro round. [For the uninitiated, a Munro is a Scottish mountain at least 3,000ft high, there are 282 of them, and one aims to climb them all.] There are now (at least) 5 Munroists in the School, others being Clare, Eric, Ineke, and Kenneth(x2).

The Inaccessible Pinnacle (*Photo John Allen*)

Future Events

- Sophie Huczynska and Nik Ruskuc are organising a (mostly internal) Combinatorics Day on Tuesday 24th May from 10:50 to 17:15. For details contact Nik at nik.ruskuc@st-andrews.ac.uk

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