School of Mathematics and Statistics Newsletter

December 2021

Congratulations …

• to Lianne Fyfe on successfully defending her PhD thesis entitled 'Synthetic Observational Signatures of Coronal Heating Mechanisms from 3D Numerical Simulations' on 7th December.

Farewell …

• to Steve Drasco, who is leaving us in January and who has been with us as an Associate Lecturer in Statistics since July 2019. We wish him the very best for the future.

• to Alexei Borissov who has left the Solar and Magnetospheric Theory Group in November to take up a position at the *Edinburgh Parallel Computing Centre* (*EPCC*).

Activities - Virtual or Otherwise

• Saul Freedman virtually attended the 65th Annual Meeting of the Australian Mathematical Society, hosted by the University of Newcastle from 7-10th December, and gave a talk on 'The intersection graph of a finite simple group'.

• Colva Roney-Dougal attended *Groups in Madrid* on 25-26th November, which was organised by our former student Alejandra Garrido (amongst others), and gave an invited talk on 'Base sizes and complexity of finite permutation groups'.

• Victoria Gould and Craig Miller (a former St Andrews PhD student) visited the School from 6-10th December. The visit is part of an EPSRC joint grant that Victoria Gould and Nik Ruskuc currently hold. The work also includes Matthew Brookes, who is a postdoc in St Andrews on the grant, and Ashley Clayton.

• On 23rd November, Peter Cameron spoke at the *Ural Seminar on Group Theory and Combinatorics* in Yekaterinburg, Russia, on 'Generalisations of EPPO groups using graphs'. On 7th December, he spoke at the *Algebraic Graph Theory International Webinar*, run from Bratislava, on 'Graphs defined on groups'.

• Jon Fraser gave a virtual talk entitled 'Assouad dimension of distance sets' at the *Canadian Mathematical Society Winter Meeting* on 5th December.

• Kate Mowbray and Thomas Neukirch participated in an online workshop *Particle Acceleration in Solar Flares and the Plasma Universe – Deciphering its Features under Magnetic Reconnection*. The workshop was organised by Kavli Institute for the Physics and Mathematics of the Universe, University of Tokyo, from 15-19th November. To accommodate participants from around the world the talks were scheduled between 8am and 1pm US Eastern Time, which for UK participants conveniently worked out as 1pm to 6pm GMT, but the colleagues in Japan who organised the meeting had to burn the midnight oil and stay up until 3am!

• On 14th December, Harry Callingham and Jack Reid attended and presented posters at the *SUPA Cormack Astronomy Meeting*, which brings together astronomers across Scotland and is also popular with the Astronomy Group across the bridge. Whilst it had been intended that participants should gather at their local institutions, with these connected remotely, because of the unfortunate recent events, those from St Andrews and Glasgow all connected individually.

- Over the past month the School, jointly with Biology, hosted Aaron Ellison from Harvard as a *University Global Fellow*. He was based in CREEM for two weeks before spending time in the Centre for Biological Diversity (CBD). There was a lot of interest from across the University as this was the first Global Fellow to visit for 2 years, due to the pandemic. As a precursor to his visit, Aaron gave a joint CREEM and CBD virtual research seminar, and there was an in-person reception with staff and students at the Bell Pettigrew Museum. Aaron gave an informal seminar/discussion session with Statistics and Biology research staff and postgraduate students on publishing, as well as a guest lecture in MT5767 - Modelling Wildlife Population Dynamics

- Isobel Falconer organised the *British Society for the History of Mathematics Christmas Meeting*, held on 11th December. Deborah Kent was the main speaker; her title was 'Fit for making a decent observation? Photography and the British eclipse expedition of 1871'. The meeting was planned to take place at the University of Warwick, and Isobel was already down in Coventry when BSHM Council decided that it should be held online instead. Thirty-six fairly frantic hours later, the meeting was highly successful, with about 70 online attendees enjoying a wide variety of excellent talks.

- Deborah Kent participated in *Absorbing, Adapting and Influencing New Technologies* that took place on 6-8th December, the first in a series of workshops for the AHRC-funded research network *Observatory Sites and Networks since 1780*. The workshop was scheduled to be held in person, then moved to online.

Grants

- The Solar and Magnetospheric Theory Group has been awarded a three year renewal of their *STFC Consolidated Grant* 'Solar and Magnetospheric Plasmas: Theory and Application', with a total value of £1.13M. The grant will start on 1st April 2022 and, among other things, will fund two postdoc positions.

- Alexander Stewart, in collaboration with Joshua Plotkin (University of Pennsylvania), has been awarded $1M funding from the *Templeton Foundation* to develop mathematical models of online social behaviour. The three-year project, entitled 'Cultural Evolution and the Online Social Contract', will be shared equally between St Andrews and the University of Pennsylvania.

- Isobel Falconer, together with Dennis Lehmkuhl of the University of Bonn, has been awarded a £20k *St Andrews - Bonn Collaborative Research Grant* for a project entitled 'The Gravitational Constant 1890-1915 – From the Local to the Universal'. This two-year project will investigate how the gravitational constant, G, was transformed from a controversial innovation in the 1890s to an unquestioned fundamental constant of nature in Einstein's theory of General Relativity by 1915.

- Deborah Kent has been awarded an *Edinburgh Mathematical Society Covid Recovery Grant* of £1.5k to hire a research assistant for the project 'Save our Seals: Extracting 19th-century data to inform 21st-century marine mammal population models'.

Other News

- Caroline Series, Emeritus Professor of Mathematics at the University of Warwick, was awarded an Honorary DSc degree at the Graduation Ceremony on 30th November, with a laureation by Colva Roney-Dougal. Caroline has done foundational work in hyperbolic geometry, particularly oncoding of geodesics, as well as popularising the area in her book *Indra's Pearls*, co-authored with David Mumford and David Wright. She has taken a leading role in encouraging women mathematicians, and was only the third female President of the London Mathematical Society.

Next Issue

- The next edition of the School Newsletter will be circulated in January. Items for inclusion 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.

A Happy Christmas to all our readers!