School of Mathematics and Statistics Newsletter

April 2021

Congratulations …

• to Mun See Chang who successfully defended her PhD thesis called 'Computing normalisers of highly intransitive groups' on 23rd March. Mun See is now working as a postdoc in Computer Science, here in St Andrews.

• to Stuart Burrell for successfully defending his PhD thesis entitled 'Coincidence and disparity of dimensions in four fractal families' on 25th March. Stuart currently holds an LMS Early Career Fellowship in St Andrews.

• to Ineke De Moortel on her Leverhulme Trust Research Project Grant for £459k for a five-year project *Joining up an Unprecedented View of our Sun*, following on from the launch of the European Space Agency *Solar Orbiter* in February 2020 which will take the closest ever images of the Sun.

• to Shayo Olukoya and Jack Reid on being awarded *Associate Fellowships of the Higher Education Academy*.

Best wishes …

• to Rosemary Bailey who had a nasty fall last Sunday afternoon while out walking with Peter along the coastal path near Boarhills. She tripped at the bottom of a flight of slippery stone steps and banged her head, sustaining some deep cuts and fractures to her neck and pelvis. The emergency services responded quickly and flew her by helicopter to Ninewells, where she is now. Peter reports that her prognosis is good and the doctors are already talking about post-discharge monitoring. Characteristically, she is concerned about the students on her Design of Experiments module and gave Peter instructions on how to make this week's teaching materials available. We all wish Rosemary as speedy a recovery as possible.

Welcome …

• to Rachel Smith, our new School Manager, who joined the School on 1st April. Rachel is looking forward to meeting members of the School virtually and hopefully in person before too long.

Farewell …

• to Craig Johnston who left the School at the end of March. Craig was a PhD student from September 2014 to March 2018 and a Postdoc since April 2018 in the Solar and Magnetospheric Theory Group. We wish him all the best for his new position at NASA Goddard Space Flight Center in Greenbelt, Maryland.

• to Lawrence Lee who, having recently completed his PhD thesis, started as an EPSRC Doctoral Prize Fellow at the University of Manchester on 1st April. Lawrence is working with Tom Kempton, a former postdoc in our Analysis Group.

Virtual Activities

- Several members of the School participated in the *British Mathematics Colloquium - British Applied Mathematics Colloquium* (*BMC-BAMC*) held virtually in Glasgow from 6-9th April.

  Colva Roney-Dougal gave a BMC morning lecture on 'Finite simple groups and computational complexity'.

  Jean Reinaud and David Dritschel organised a mini-symposium on *Eddies in Geophysical Fluid Dynamics* with invited speakers from Cambridge, Coventry, Reading and Moscow. David presented a contribution by Helen Burgess and gave a talk on works with Mohammad (Reza) Jalali.

  Nikos Sfakiankis and Cicely Macnamara organised a mini-symposium on *Tracking Cellular Processes Through the Scales* during which Cicely spoke on 'Biomechanical modelling of cancer' and Nikos spoke on 'Cell migration and local cancer invasion'.

  Jochen Kursawe and Giorgos Minas organised a mini-symposium on *Stochastic Models in Biology Informed by Data* with five speakers attracting 50 attendees on average.

  Jochen Kursawe, Fiona Macfarlane and Giorgos Minas contributed talks in the *Mathematical Biology* sections, and Jean Reinaud in the *Geophysical Fluid Dynamics* section which was chaired by Jemma Shipton (Exeter), a former PhD student of the Vortex group.

  Laura Johnson presented a poster on 'Partitioning groups into external difference families', and former PhD student Nayab Khalid spoke on 'An infinite geometric presentation for Thompson's group *F*' in the *Group Theory Workshop*.

  Sophie Huczynska attended a BMC Scientific Committee meeting which took place during the Colloquium.

  Last but not least, Mark Chaplain took part in a live lunch-time presentation to mark the publication of the 100th book in the Springer SUMS (Springer Undergraduate Mathematics Series) series.

- Yoav Len organized a virtual workshop *Algebraic Geometry and Polyhedra* at ICERM (Institute for Computational and Experimental Research in Mathematics) at Brown University from 12-16th April. The workshop featured talks on tropical geometry, matroids, Schubert calculus, and mirror symmetry, as well as a virtual poster session.

- Peter Cameron spoke in the *Pure Mathematics Seminar* at the University of East Anglia on 22nd March. On 24-25th March, he gave the opening talks in a new research seminar on *Graphs and Groups* run from Kochi in Kerala, India, with 50 participants from all over India and beyond.

- Amlan Banaji gave an online talk entitled 'Intermediate dimensions and infinite conformal iterated function systems' on 19th March at the *Junior Ergodic Theory Seminar* (*JETS*).

- Natalia Jurga and Raquel Couto attended the Spring School on *Transfer Operators* (*Classical and Modern Techniques*) from 22nd-26th March, which was meant to be taking place at the Bernoulli Centre in Lausanne, as part of a longer research semester on *Dynamics, Transfer Operators and Spectra*.

- Laura Johnson gave a seminar on 16th March for the *Junior London Algebra Colloquium* (*JLAC*) entitled 'Cyclotomic Constructions of EDFs, SEDFs and other related combinatorial structures'.

- Richard Glennie contributed a talk about combining animal movement with other population abundance methods at the *Channel Network Conference*, run by the International Biometric Society, in an invited session on statistical modelling in movement ecology. His co-presenters gave very interesting talks on extending movement models: non-Markovian, non-parametric, and using deep learning.

- Isobel Falconer attended an international workshop on *The Perils of Prediction* on 18-19th March, organised by the History and Philosophy of Science department at the University of Athens. The workshop raised many philosophical, pragmatic, and historiographic issues around the interface between mathematics and various sciences, especially weather and climate forecasting, seismology, and high energy physics.

- Alan Cairns took part in the 47th annual conference of the *Institute of Physics Plasma Physics Group*, held via Zoom on 6-9th April. He was a co-author on two talks and two papers, though happy to have younger collaborators do the presentations. He was also one of the judges of the *Culham Thesis Prize*, the winner of which is asked to give an invited talk at this meeting.

Other News

- Colva Roney-Dougal was a panellist for the *In Our Time* programme about Pierre-Simon Laplace that was broadcast on BBC Radio 4 on 8th April. The programme was chaired by Melvyn Bragg and also featured Marcus du Sautoy and Tim Gowers and is available as a podcast at
http://www.bbc.co.uk/sounds/play/m000twgj

- Kenneth Falconer has been appointed to the Advisory Group for the *Heilbronn Institute for Mathematical Research*.

Next Issue

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