

School of Mathematics and Statistics Newsletter

May 2020

Congratulations ...

- to Statistics PhD student Fanny Empacher who gave birth to a daughter Thea weighing 6lb 7oz on 10th May in Uppsala, Sweden. They are back at home and doing well.
- to Douglas Howroyd who passed his PhD viva on 1st May on *Teams* with a thesis entitled ‘On the regularity dimensions of measures’. This was followed by a virtual wine and nibbles celebration.
- to James Threlfall of the Solar Group who has been appointed lecturer at Abertay University from 1st July.
- to Eric Priest who has been awarded the *Senior Prize of the European Solar Physics Division of the European Physical Society* for ‘long-standing leadership via mentoring, supervising and field-defining textbooks and for fundamental contributions in key topics of solar magnetohydrodynamics, particularly magnetic reconnection in the solar atmosphere and solar coronal heating’.



New Staff

- Three new staff members will (at least virtually) be joining the School on 1st June. Deborah Kent, who comes to us from Drake University in Iowa, is a historian of mathematics specialising in 19th to mid-20th century mathematics. Yoav Len, who joins us from Georgia Tech, works in tropical, algebraic and enumerative geometry. Chris Sutherland returns to Scotland from the University of Massachusetts to work in statistical ecology.

Virtual Activities

- Jon Fraser gave a talk via Zoom to the *Weslyan University Colloquium* entitled ‘Parabolic points, Poincaré exponents, and Patterson-Sullivan measures’.
- Several members of the Analysis Group attended a talk by recent research student Han Yu, now in Cambridge, on the *Online Ergodic Theory* meeting on 6th May on ‘Irrational rotations: Benford’s law and beyond’.
- Haiping Chen (‘Clarence’) attended the *Distribution of Prime Numbers* mini-course organized by Soochow University from 1st-3rd May by Zoom. The speaker was Jie Wu, a Professor at Université Paris-Est Créteil, who talked about the prime number theorem and its proofs.
- Due to the lockdown Duncan Mackay was unfortunately not able to visit the University of Sheffield on 8th May for a research visit and seminar.
- On 22nd April Jon Fraser spoke at *Lunchtime Legends*, a CAPOD run series of talks, about various aspects of Outreach.

- Andy Lynch virtually attended the *PanProstate Cancer Group* meeting ‘in’ Italy from 10-12th May. Andy commends the child-care facilities, though the quality of the wine was disappointing.
- Peter Cameron gave a talk (sadly virtual) to the *Rocky Mountain Algebraic Combinatorics Seminar* at Colorado State University at Fort Collins on ‘Synchronization, diagonal structures, and the Hall-Paige conjecture’ on 24th April (at 11pm our time). The talk was well received, one participant describing it as like ‘a fireside chat’.



Appropriate sign near Fort Collins

- Thomas Neukirch participated in *European Geophysical Union 2020 General Assembly* online (instead of Vienna) from 4-8th May. He contributed a talk entitled ‘Kinetic models of current sheets in the solar wind’ to the session ‘Multi-spacecraft measurements in the inner heliosphere on various scales’. Participants uploaded their talk beforehand and the session was then held in a dedicated online chat forum. Thomas was also co-author of a talk ‘An optimization principle for computing stationary MHD equilibria with solar wind flow’ presented by his former St Andrews postdoc Thomas Wiegmann in a session ‘Theory and simulation of solar system plasmas’.
- On 4-7th May, Len Thomas, with Catriona Harris and Peter Tyack in Biology, hosted the start-up meeting for a large US Navy-funded working group investigating the population consequences of multiple stressors on marine mammals, with 17 participants from the UK and USA. Then on 12-13th May, Len, with Cormac Booth of SMRU Consulting, hosted a *Teams*-based meeting on refining US Navy methods for marine mammal monitoring; this would originally have taken place in San Diego in April alongside a larger meeting that was cancelled due to COVID-19.

Other News

- Ruth Bowness, a member of the Mathematical Biology group, has been awarded a six month research project as part of the Scottish Government’s Covid-19 Rapid Research programme. The research will create a spatial mathematical model for Covid-19 that simulates infection in the body and the spread of disease from person to person to create a multiscale model capable of robust predictions.
- In 1977 a PhD student Ian Diamond joined the School to work under Richard Cormack’s supervision on ‘Comparisons between SCE (Scottish Certificate of Education) and GCE (General Certificate of Education) qualifications as predictors of university performance’. Ian was awarded his PhD in 1981, see <https://research-repository.st-andrews.ac.uk/handle/10023/15466> When you regularly hear Professor Sir Ian Diamond, Head of the UK Office of National Statistics, saying on the news that constructing league tables of coronavirus between countries is not straightforward, you should realise he has been thinking about such problems for a long time! Alan Hood will also confirm that Ian was, then on the rugby field, good at defending his team-mates from aggressive opposition.
- Several research groups are holding regular virtual social activities such as coffee mornings or pub evenings. We’re told that the daily CREEM *Teams* coffee-time gatherings are even better now that Fisher and Donaldson are delivering fudge doughnuts locally!
- The annual Step Count challenge has started, and CREEM has three teams of five including *CREEMcracked* and the *locked-up CREEMinals*.

Future Events

- Isobel Falconer is organising an online conference on 6th July for the British Society for the History of Mathematics on the theme *Mathematics in Times of Crisis*, which includes mathematical, economic, political, war and, of course, health crises. All contributions and offers to present talks are welcome, see <http://www.stage.bshh.ac.uk/events/mathematics-crisis-online-conference>
- Jon Fraser, along with former St Andrews postdocs Xiong Jin and Tom Kempton, have been allocated £20k plus conference facilities by the International Centre for Mathematical Sciences (ICMS) Edinburgh to host a week-long conference on *Fractal Geometry* in June 2021.

Caption Competition

Several captions were received for this picture from the previous Newsletter, including:

- *Theorem*: It takes five Academics to display one presentation.
Corollary: One Computing Officer is therefore equivalent to five Academics. PMH
- ‘Any idea where they’ve placed the hand sanitiser?’ AWH
- ‘How many applied mathematicians does it take to switch off a light?’ KJF



Next Issue

- The next edition of the School Newsletter will be circulated in June. Items for inclusion may be sent to schoolnews@mcs.st-andrews.ac.uk at any time but a reminder will be sent out a week before the deadline.