School of Mathematics and Statistics Newsletter

March 2019
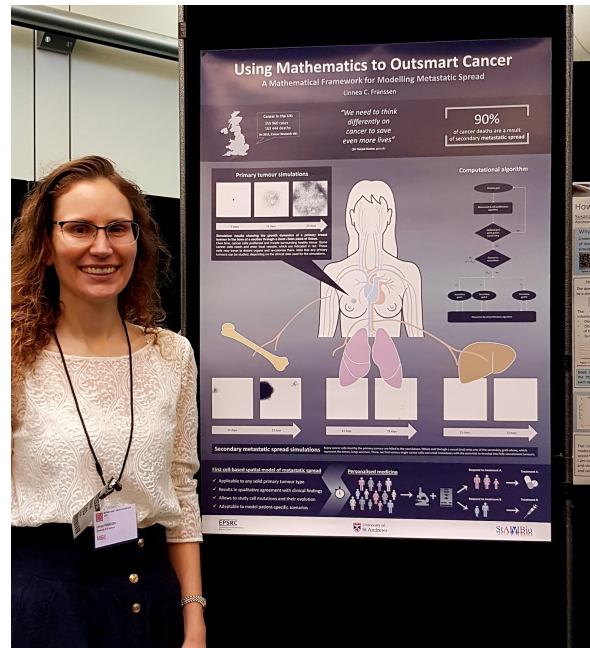
Welcome…

- to Thèo Michelot, who has taken up a 2-year fellowship with Richard Glennie, Catriona Harris and Len Thomas as part of the *Double MOCHA (Multi-study OCean acoustics Human effects Analysis)* project, looking at methods for modelling whale movement. Thèo comes to us just after completing his PhD in Statistics on animal movement modelling at the University of Sheffield: his viva was on Friday 15th February and he started work at St Andrews on Monday 18th! He has gotten off to a flying start, with a research visit to collaborators at Duke University, North Carloina, in the week of 4th March. Richard and Catriona also made the trip.

Visits and Conferences

- Len Thomas attended a meeting of the Technical Advisory Group of the *Great Elephant Census Forest Initiative* at the end of February in New York's Central Park Zoo. This aims to estimate the population size of African forest elephants, a tall order given that much of the population lives in remote forest and is very wary of humans given the high poaching pressure. Several survey methods have been trialed, and the meeting aimed to evaluate their feasibility for a large-scale survey. Also present was former stats PhD student Samantha Strindberg, now a biometrician for the Wildlife Conservation Society and at the heart of the design of the elephant survey.

- Rick Camp visited Universidade de Lisboa, Portugal, from 12-15th February where he worked with Tiago Marques (CREEM and Universidade de Lisboa) on measurement error models, and gave a seminar entitled 'Estimating bird densities from single acoustic recorders and accounting for measurement error'. On 5th March Rick took part in the inaugural University of St Andrews PubhD event at the St Andrews Brewing Co at which he had 10 minutes to present his PhD research.

- Jonathan Hickman participated in an intense SQuaRE (Structured Quartet Research Ensemble) at the *American Institute for Mathematics* in San Jose along with three collaborators (David Beltran, BCAM; Shamoing Guo, UW Madison; Andreas Seeger, UW Madison) on a project *Decoupling theory and applications*. They hope to use new tools in Fourier analysis to attack some deep problems on maximal functions.

- On 14th March Jonathan Hickman gave a talk in the *Analysis and Geometry Seminar* at the University of Bristol, entitled 'On convergence of Fourier integrals'.

- Mike Todd visited the University of Porto for a week to work with Ana Cristina Freitas and Jorge Freitas on point processes in extreme value theory and dynamical systems.

- Nik Ruskuc is visiting Peter Mayr at the Colorado University, Boulder from 11th-22nd March.

- Patrick Antolin gave an invited seminar to the *Plasma Dynamics Group* of the University of Sheffield on the 7th March. The title of his talk was 'Transverse MHD Waves and associated dynamic instabilities in the solar atmosphere'.

- Alan Hood gave a seminar at Dundee University on 19th February entitled 'Solar Avalanches and Cellular Automata (Bursty coronal magnetic energy release via an MHD avalanche)'.

- Ineke De Moortel visited the University of Oslo from 25-28th February to collaborate with members of the *Rosseland Centre for Solar Physics*. She also gave a seminar and took part in the group's annual research days.

- On 13th March Linnéa Franßen attended the *STEM for BRITAIN* event at the House of Commons as a finalist in the poster competition for early-career researchers. She presented her mathematical modelling framework of metastatic spread. Apart from the science, she was particularly excited about the division bell ringing to call the MPs – including the event's host, who had to leave the stage during the ceremony – for the vote on the no-deal-Brexit. (The outcome of the vote suggests that her attempts at telepathy may have had some effect… .)

Linnéa's presentation at the House of Commons

- Our School President, Kamilla Rekvenyi, spoke at the British Society for the History of Mathematics' *Research in Progress* meeting in Oxford on 23rd February. Her title was 'Paul Erdős' Mathematics as a Social Activity', and the talk was based on the essay that won her the BSHM essay prize last year. Isobel Falconer attended the meeting, chairing the afternoon sessions, and stayed on in Oxford for several days attending two further history of mathematics seminars.

- Danny Otero, our visiting scholar in the history of mathematics, has visited Dundee, Stirling, and Aberdeen to give seminars on 'Transforming instruction in undergraduate mathematics via primary historical sources', having spoken here on 21st February on the same topic. In Stirling he also gave a public lecture on the history of time.

Grants

- Pablo Shmerkin (Buenos Aires) will be visiting St Andrews for several months next academic year. Jon Fraser has been awarded an LMS Scheme 2 Grant of £1500 towards the visit which will enable Pablo to visit and give talks at Edinburgh and Warwick as well as at St Andrews during his stay.

Public Engagement

- On 7th March Valentin Popov gave a talk at a Bright Club event in St Andrews introducing the ideas of hypothesis testing and the binomial distribution in the form of stand-up comedy.

- On 9th March Rick Camp, Charles Paxton and Lindesay Scott-Hayward ran a research stand at the University *Science Discovery Day*. They demonstrated animal diversity and abundance estimation methods to some of the 1200+ visitors that attended the event. On the same day Charles made an appearance in the *Ig Nobel Prize Show* with the Ig Nobel founder Marc Abrahams.
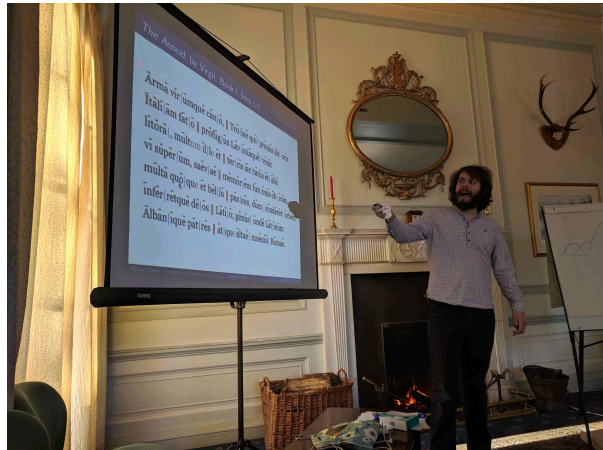
Other News

- Congratulations to Beth Barlow who has been elected School President for 2019-20. Beth is in her third year of a BSc Economics and Statistics degree and already represents the School's student body on the STEM building project board.

Caption Competition

The February Newsletter invited captions for this picture of Michael Torpey talking about his thesis on the postgraduate trip to the Burn. Suggestions received include:

- 'Now I know it's all rather meaningless to you all, but that's Pure Maths for you!' AWH

- 'One has only to look at the likes of Newton, Gauss and Fermat to realise that the secret of a becoming a great mathematician is to write in Latin.' KJF

Next Issue

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