

School of Mathematics and Statistics Newsletter

March 2024

Welcome to ...

- Vilma Orgoványi from Budapest University of Technology and Economics and to Roope Anttila from the University of Oulu, Finland who are both visiting the Analysis group for several months.

Farewell to ...

- Shuqin Zhang who is returning to Hunan University after visiting the Analysis group for a year under the China Scholarship Council scheme.

Conferences, Talks and Visits

- Fiona Macfarlane gave an invited talk on ‘Discrete and continuum methods to describe cancer invasion processes’ as part of the University of Warwick Applied Mathematics Seminar Series on 1st March. Fiona also spent the day discussing her research with researchers from maths and physics at Warwick who work on similar problems.
- Nikos Sfakianakis has recently returned from a week in South Africa where he delivered a miniseries of lectures on Mathematical Oncology in the *African Mathematical School* on ‘Quantitative biology: Applications in epidemiology, ecology and cancer’ and a plenary presentation on ‘Cell migration’ in the corresponding *International Conference on Mathematical Modeling in Biology and Life Sciences*.
- Lindesay Scott-Hayward and Saana Isojunno had a fruitful few days in Copenhagen attending a funders meeting for a project on seabird sensitivity mapping of Danish waters in relation to offshore windfarms. Their collaboration is with Aarhus University and the wider project is managed by NIRAS and funded by the Danish Energy Agency.
- Cornelia Oedekoven just returned from southern Laos where she, Mark Johnson and researchers from WWF and Association Anoulak tested new acoustic recorders for monitoring gibbons in the Xe Sap National Protected Area. More information can be found in the latest news post from Association Anoulak at <https://www.conservationlaos.com/gibbon-surveying-in-the-digital-age-field-testing-of-first-automated-acoustic-recorder-prototype/>



- From 29th February-1st March, Rosemary Bailey and Peter Cameron attended a workshop on *Response-Adaptive Randomization* held in the CRUK building on the Cambridge Biomedical Campus. Others attending included Stephen Senn, who has recently been made an honorary professor in the School, and Mia Tackney, whose 2015 undergraduate project on ‘Hasse diagram approaches to the ANOVA in experimental design’ was supervised by Rosemary. The final talk was the 41st *Fisher Memorial Lecture*, which was given by Bill Rosenberger (George Mason University) on ‘From Fisher to CARA: The evolution of randomization and randomization-based inference’.



Rosemary, Mia and Sofia Villar at the Red Lion in Granchester

- Giorgos Minas gave a seminar entitled ‘Efficient simulation, analysis and inference for large oscillatory stochastic systems’ on February 28th, at the seminar series of the Department of Mathematics and Statistics at the University of Cyprus. Giorgos had meetings with department colleagues before and after the talk and discussed common research problems.
- On 28th February, Ben Swallow gave a seminar to the School of Mathematics at the University of Strathclyde on ‘Some data-driven approaches to surveillance of Covid-19 in the UK’.
- Dimitrios Katsaounis presented a poster titled ‘Hybrid modelling for cancer invasion and metastasis’ at the workshop *Bio-PDE Days Vienna* hosted at the Technical University of Vienna from 28th February-1st March.
- On 23rd February, Kenneth Falconer gave a Colloquium talk on ‘Fractals and intermediate dimensions’ at Warwick University Mathematical Institute.
- Mike Todd visited Bristol for a week and had research discussions on problems in recurrence with Thomas Jordan and Henna Koivusalo and gave a talk on ‘Continuity of measures in nonuniformly hyperbolic settings’. Mike also visited University College Dublin for a week, hosted by Neil Dobbs, where he spoke on ‘Statistical limit laws for heavy tailed observables’.
- On 4-5th March, Scott Harper visited Tim Burness and David Ellis at the University of Bristol to work on projects involving derangements and generation in finite groups.
- During the Spring Break, Sophie Huczynska made a research visit to University College Dublin (UCD) where she worked with John Sheekey and Gary McGuire and met other members of the *Applied Algebra and Information Theory Research Group*, as well as combinatorialists from Dublin City University. On 29th February she gave a talk in the UCD *Algebra and Number Theory Seminar* entitled ‘Difference families and cyclotomy: Applications in cryptography and communications’.
- On 20th February, Alex Rutar gave an online talk hosted by Clarence Chen at the Shenzhen Technology University titled ‘Some exotic phenomena for Assouad spectra’. Then from 26th February-1st March, he visited Andreas Seeger at the University of Wisconsin, Madison, and gave a talk in the Analysis seminar ‘Dynamical covering arguments via large deviations and non-convex optimization’. On 4th March, he visited the University of Warwick to speak in the *DAGGER* (*Dynamics and Group Geometry Early Researchers*) seminar, where he spoke on ‘Multifractal analysis via Lagrange duality’. Finally, he visited Amlan Banaji at the University of Loughborough from 5-7th March where he gave a talk in the *Dynamical Systems Seminar* with the same title that at Wisconsin.

- Isobel Falconer was invited to lead a discussion on 14th February for the *Consortium for History of Science, Technology and Medicine* (Philadelphia), on her paper ‘Vortices and atoms in the Maxwellian era’ and the organisers fed back that it was the most lively session they had had.
- Chanchan Guo (visiting scholar from Yan’an) gave an invited talk to the *History of Mathematics Forum* in Oxford on 27th February on ‘Evolution and continuation of the historical study of non-Euclidean geometry’.
- On a research trip to Ireland 26-29th March, Deborah Kent met colleagues at Trinity College Dublin and consulted collections at the Royal Irish Academy and the National Library of Ireland. She gave a mathematics colloquium at the University of Maynooth to a lively audience, and spent an afternoon with the remarkable collection of rare mathematical books in the Russell Library of St Patrick’s Pontifical University. The space was designed by Augustus W.N. Pugin at the height of the Gothic Revival and filled with books imported from continental Europe in the 17th century by returning priests. Deborah had the place to herself and, no limit on the number of books out at a time. She also had a productive research meeting with colleagues at Linacre College, Oxford, on 1st March.
- Several members of the History of Mathematics group attended the British Society for the History of Mathematics *Research in Progress* meeting at The Queen’s College, Oxford on 2nd March. Kate Hindle gave a talk on ‘Placing D’Arcy Thompson in the history of mathematics’ and Deborah Kent chaired a session.



Outreach

- On 4th March Ursula Martin gave a talk in Bath on Ada Lovelace as part of the *Extraordinary Women Festival* organised by the Bath Royal Literary and Scientific Institution.
- Kenneth Falconer gave a public lecture on 21st February at the *Cardiff Scientific Society* on ‘Fractals: Shape, size and form’.

Other News

- Daphné Lemasquerier has been awarded a *Royal Society Research Grant* for £70k. This is an equipment grant for her experimental project on Rossby wave-mean flow interactions in a rotating fluid mechanics experiment at the Scottish Oceans Institute.
- On 4 March the *History for Diversity in Mathematics Network*, led by St Andrews, ran its first monthly online reading group meeting. This a UK-wide network of maths lecturers exploring ways in which history of mathematics might be effective in promoting EDI within the mainstream mathematics curriculum at HE level. Anyone interested in joining, should either contact Isobel Falconer, or join the JISCmail list at <https://www.jiscmail.ac.uk/cgi-bin/webadmin?SUBED1=HISTORY-FOR-EDI-IN-MATHS&A=1>

Future Events

- On Friday 22nd March at 4pm, St Andrews will be hosting a meeting of the *Edinburgh Mathematical Society*. The speaker will be Mark Jerrum from Queen Mary, University of London and the talk will be aimed at the general mathematician.

- On Thursday 14th March, 10.30 -14.00, stop by at the Martyrs Kirk Research Library in North Street for a student-run guided exhibition of some Special Collection artifacts relating to the history of women in mathematics. See material related to:
 - St Andrews' Lady Literate in Arts (LLA) scheme, one of the first higher education qualifications for women
 - Mary Somerville, an extraordinary Scottish mathematician
 - The Ladies' Diary and its promotion of mathematical engagement
- Advanced notice that Johan Martens and Thibault Poiret are organizing a workshop at St Andrews on *Tropical Geometry* with GLEN on 18-19th April. (GLEN is a joint seminar in algebraic geometry between the Universities of Glasgow, Liverpool, Manchester, Sheffield and Edinburgh, aka the 'Highland Cow' seminar') See <https://www.maths.ed.ac.uk/~jmartens/GLEN.html>
- Advanced notice that the *Scottish Combinatorics Meeting 2024* will be held on 27-28th May at St Andrews. This is the latest in a series of 2-day combinatorics meetings which has been running for several years. See <https://sites.cs.st-andrews.ac.uk/scm2024/> for more details.

Next Issue

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