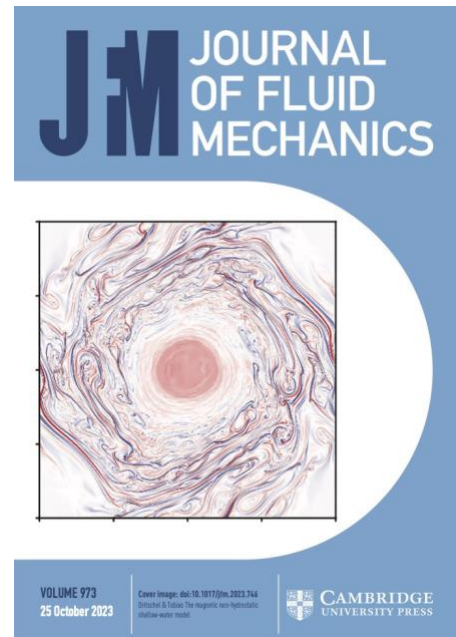


School of Mathematics and Statistics Newsletter

November 2023

Congratulations to ...

- David Dritschel and his collaborator Steve Tobias (Leeds) on an image from their article being featured on the front cover of the Journal of Fluid Mechanics, Volume 973. The article examines the development of a twisting magnetic field in a shallow fluid layer, a model for a stably-stratified layer beneath the visible surface of the sun and other stars. The simulation used the publicly-available Hydra software package developed by David allowing unprecedented detail, as in the vorticity shown in the image.
- Maria Tsalakou for successfully defending her PhD thesis entitled ‘Modern computational methods for finitely presented monoids’ on 26th October.
- Eric Priest who celebrated his 80th birthday on 7th November (remember ‘EIGHTY’ is only thirteen in Scrabble!).



Welcome to ...

- Jordi De Jonghe, a new postdoc in the Solar and Magnetospheric Theory Group funded by the group’s STFC Consolidated Grant. Jordi recently completed his PhD at KU Leuven on linear plasma waves and instabilities and will be working with Thomas Neukirch on magnetic reconnection.
- Guo Chanchan, a postdoctoral researcher from Yan’an University in Shaanxi province in Northern China, who is visiting the History of Maths group for a year, supported by the Chinese Scholarship Council. Whilst here, Chanchan hopes to research the reception of non-Euclidean geometry by Chinese mathematicians.
- our new cleaner, Fiona, who started at the beginning of November.

Visitors

- Victoria Gould (York) visited Nik Ruskuc and Matthew Brookes from 23rd-27th October to continue work on their joint EPSRC-funded project.

Conferences, Talks and Visits

- From 18-19th September, Ben Baer, Tom Elsdén, Crissy Fell, Natalia Jurga, Stefania Lisai and Daphné Lemasquierier participated in the ‘Induction Course for New Lecturers in the Mathematical Sciences 2023’, held at the *Isaac Newton Institute* in Cambridge.

- A University fundraiser/alumni event *How Mathematics at St Andrews is Transforming Our Future* took place on 26th October at the Inner Temple in London. The University Development Office were pleased that the event sold out within a few hours of being announced, which is almost unprecedented. Jon Fraser spoke about ‘Fractals’, Ali Johnston talked about ‘Counting snow leopards’, Alex Stewart spoke on



‘Using mathematical models to understand echo chambers’ and Antonia Wilmott-Smith also attended. There was a huge range of questions, including one from a school pupil ‘Which GCSE do you now find most useful in your working life?’ (Alex answered ‘Drama’!)

- Fiona Macfarlane presented a poster ‘Mathematical modelling of phenotype-structure in cell populations’ at the *Annual Collaborative Research and Innovation Symposium* organised by NHS Fife and the University of St Andrews. The event took place on 25th October at Balbirnie House in Markinch and included a wide range of talks from clinicians, public health officials and academics.
- Colva Roney-Dougal gave a *Warwick Mathematics Colloquium* on 20th October, and an *Algebra Seminar* at the University of Western Australia on 3rd November. She is currently on a three-week research visit to UWA working on a project in loop theory with Michael Giudici, and a project in group theory with Cheryl Praeger.
- Peiran Wu visited the University of Warwick on 13th November, where he gave a talk at the *Algebra Seminar*, titled ‘Irredundant bases for the symmetric and alternating groups’.
- Murray Whyte gave a talk at the University of York on 1st November for their *York Semigroup Seminar*, entitled ‘Short presentations for some transformation-like semigroups’.
- Scott Harper attended the 60th birthday conference for Pham Huu Tiep *Group Theory and Number Theory: Interactions* at Princeton University from 16-20th October.
- Nik Ruskuc is visiting Peter Mayr at the Colorado University at Boulder from 30th October - 6th December. On 7th November, Nik gave a talk at the local *Algebra and Logic Seminar*, and, simultaneously, the *Pan-global Algebra and Logic Seminar (PALS)* on 7th November.
- On 17th November Alex Rutar gave a talk titled ‘Assouad-type dimensions: finer information on scaling and homogeneity’ in the *Online Analysis Research Seminar*, a bi-weekly online seminar jointly hosted by various US universities. He also spent an afternoon at the Institute of Science and Technology, Austria where he gave a talk ‘Multifractal analysis of non-conformal measures’ in the *Joint Budapest-Vienna Dynamical Systems Seminar*.
- David Dritschel attended the *Norway-Scotland Symposium on Waves and Marine Physical and Biological Processes*, held in Oslo from 30th-31st October, sponsored by the Norwegian Academy of Sciences and the Royal Society of Edinburgh. David also visited the University of Vienna from 15th-22nd October, to work with colleagues on a problem involving the fluid dynamics of vortex interactions in spherical geometry.
- From 24-26th October, Daphné Lemasquier virtually attended a workshop on the *Origins and Habitability of the Galilean Moons*, which was held in person in Marseille, France.

- Russell Campbell and Daphné Lemasquierier participated in the *UK Fluids Conference 2023*, in Glasgow from 17-19th October. Russell gave a talk entitled ‘A 1-D model of melt-pond drainage on Arctic sea ice’ and Daphné gave one on ‘A quasi-linear wave-mean flow interaction approach to modelling zonal jets’.
- Jean Reinaud gave an online presentation on ‘Quasi-geostrophic vortex vertical alignment in near collapse interactions’ in the hybrid 20th *International Conference on Flow Dynamics* held from 6-8th November, held at Sendai, Miyagi, Japan.
- Isobel Falconer gave an invited seminar in the University of Bristol Philosophy Department on 9th November. Her talk, on ‘Maxwell, Kelvin and the inverse square – a case of epistemic injustice?’, was followed by a 40 minute debate with a receptive audience of about 30. While there she also met with Ana-Maria Cretu to discuss work on human computers (mainly female) in the 20th century.

Other News

- Jon Fraser has been awarded an EPSRC grant for £50,597 for a project entitled *Fourier analytic techniques in finite fields*. The project will run for a year from May 2024.
- In October Ben Swallow was re-elected Chair of the *Environmental Statistics Section* of the *Royal Statistical Society*.

Outreach

- On 10th October, Alan Hood gave a talk entitled ‘Here comes the Sun’ to the *St Andrews Probus Club*, a club for retired professional or business people. There were more in the audience than at a typical level 5000 lecture and they all stayed awake!
- Colva Roney-Dougal gave the *Dame Kathleen Ollerenshaw public lecture* at the University of Manchester on 19th October, and was pleased to be able to explain Ollerenshaw’s connection to St Andrews, namely that she attended St Leonard’s school.

Future Events

- The School Research Day will take place on 1st December. This is a day of short talks from researchers across the School. All are welcome, email maths-research-admin@st-andrews.ac.uk to register, so we can arrange catering. The schedule will appear [here](#).

Next Issue

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