

FLEET News: equity edition (July 2019)

This month we highlight efforts within FLEET to move towards greater gender equity. In particular, we are pleased to share a review of recruitment for FLEET's new women-only fellowships, and to introduce our new Women in FLEET mentoring initiative. We also introduce several talented new members: our first three WIF Research Fellows, a new AI, and a new PI.

In research news published this month, we describe turbulence research at Monash/UQ, ferroelectrics at UNSW, and spintronics at RMIT.

Regards

A/Prof Elena Ostrovskaya

Chair, FLEET Equity and Diversity Committee
Node leader, FLEET ANU

Catch up on previous editions of FLEET News



Equity efforts at FLEET

The data shows that Australia is nowhere near gender equity in science – women face additional challenges in pursuing a career in research. Progress towards equality at senior levels has been extremely slow, particularly in the field of physics. In this edition of FLEET News we include some new resources for women in science, and describe efforts within the Centre to move towards equity.

In this edition:

Welcoming new FLEET members (UTS, ANSTO, Monash and UNSW)

Women in FLEET Fellowships

Turbulence studies (UQ and Monash)

Native ferroelectric discovered (UNSW)

Spintronics advance (UNSW and RMIT)

Lab tours (Monash)

Hydrogen collaboration (RMIT, Monash, UNSW)

Visiting politician (UOW)

Reviewing ECR workshop (RMIT)

[Women in science mentoring](#)

Spin, topology, electron correlation workshop (UNSW)

Exciton conference, Melbourne 2020

Previous news

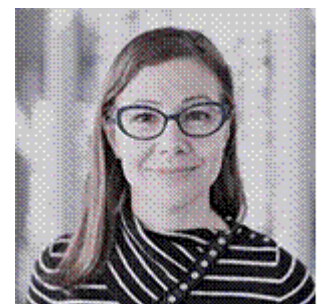
Events coming up

Welcome Francesca

Francesca Iacopi, who joins FLEET as a Scientific Associate Investigator, has over 20 years' industrial and academic research expertise in semiconductor technologies, and currently leads Communications and Electronics Engineering at the University of Technology, Sydney.

Within FLEET, she will investigate graphene for low-energy electronic devices, and will liaise with the IRDS to advise potential applications and integration strategies for novel technologies generated by FLEET researchers.

[Read more about her work online.](#)



Welcome Kirrily

New FLEET Partner Investigator Kirrily Rule at ANSTO is an internationally-recognised leader in understanding low-dimensional and 'frustrated' magnetic materials.

[Read more about Kirrily's research and collaborations online.](#)



Introducing new Research Fellows

We're very pleased to welcome three new Research Fellows working in diverse roles across the Centre:

- **Semonti Bhattacharyya** (Monash) is an experimental condensed matter physicist who has worked extensively on electrical transport properties of topological materials and nanofabrication of 2D materials and their heterostructures.
- **Peggy Qi Zhang** (UNSW) is a material scientist studying topological ferroelectric materials.
- **Iolanda Di Bernardo** (Monash) will use material synthesis, spectroscopy and photoemission-based characterisation of low-dimensional systems in topological and novel materials research.

[Read more about their research online.](#)



Women in FLEET Fellowships

FLEET's new women-only Fellowships, offered in multiple locations & across multiple fields of study successfully reached applicants 'missed' by multiple previous searches. Having 70 female applicants in one recruitment is unheard of in physics and materials engineering fields. FLEET has shared the long, complex process to help other organisations considering the same measures.

[Read more online.](#)



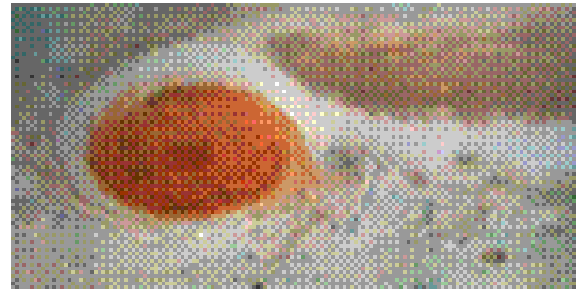
Welcome Wesley Zhang

Congratulations to Peggy Zhang and family on the arrival of Wesley over the weekend.



Turbulence studies

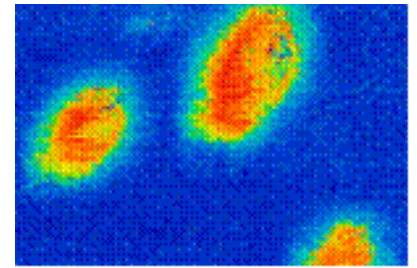
What do Jupiter's Great Red Spot, cyclones, and superconductor electron movement have in common? They're all 2D vortices, deciphered in two important turbulence studies published in Science this month. One study was led from FLEET's Monash University node (under Research theme 3 leader Kris Helmerson), while the other was led from an EQUUS/FLEET collaboration at the University of Queensland (with Matt Davis).



[Read more online.](#)

Native ferroelectric

FLEET's Pankaj Sharma and Feixiang Xiang at UNSW have described the first observation of a native ferroelectric metal in a study published this month in Science Advances.



[Read more online.](#)

Spintronics advance UNSW-RMIT

A FLEET collaboration between RMIT and UNSW combined theoretical and experimental expertise to unlock new magnetic properties in 2D, ferromagnetic van-der-Waals (vdW) materials, demonstrating that vdW spintronics could provide devices with more functionality, compared with traditional spintronic approaches. Published this month in Science Advances.



[Read more online.](#)

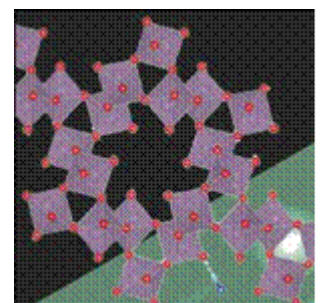
Lab tours

FLEET's Shaun Johnston and affiliate Jimmy Kotsakidis (Monash) introduced students to the wave nature of light in an innovative demonstrations using diffraction glasses and spectrometer to analyse room lighting, and polarisation filters, before moving on to a tour of Kris Helmerson's laser labs. The Indigenous Experience Winter Camp group (a Naidoc week initiative) also inspected FLEET's Superconducting Mobius track, and created 3D holograms.



Hydrogen collaboration

Molybdenum compounds could provide key to lower-energy hydrogen production – investigated for future, low-emissions energy. This experimental/theoretical collaboration between FLEET researchers at RMIT, Monash and UNSW opens a promising route towards alkaline hydrogen production.

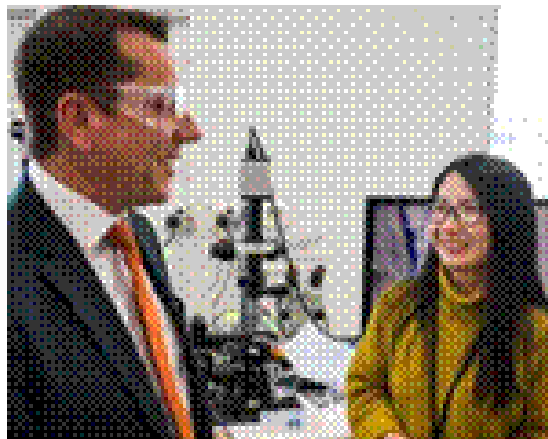


[Read more online.](#)

Making connections & FLEET in the news

The MP for Wollongong and Shadow NSW Minister for Natural Resources Paul Scully visited FLEET's labs at the University of Wollongong this month, hearing about 2D materials and other research, with Xiaolin Wang (UOW) and Dimi Culcer (UNSW).

FLEET's Jared Cole (RMIT) was recently interviewed by the ABC for a short comment on the energy consumed in data centres. [Read the article.](#)



Last year's Monash study of iron-based, trinuclear metal-organic nanostructures (Agustin Shiffrin) featured in Nature Communications top 50 Chemistry & Materials papers in 2018. [Read about the study.](#)

ECR forum: Got PhD, What's Next?

FLEET's fifth Got PhD What's Next forum brought together young STEM researchers to network, develop research capabilities and practice professional skills, this time held at RMIT in Melbourne. Panelists included FLEET's own Torben Daeneke, plus academics, researchers, lab-founders and patent attorneys.



Women in science mentoring opportunity

FLEET is pleased to be a sponsor for this year's MAGIC mentoring program, which provides mentoring and skills development for early-career women/diverse gender researchers in maths and physical science, with a five-day workshop at ANU in November. Applications close 16 August. More details at wp.maths.usyd.edu.au/MAGIC



Spin, topology & electron correlation workshop in November

Registration is now open for the Gordon Godfrey workshop at UNSW in November, to discuss spin/pseudospin and correlations in low dimensional systems and nanostructures, topological physics and materials, phase transitions, superconductivity and Bose condensation, and correlations in metal oxides.



UNSW | 25–29 November | [See more information online](#)

Spontaneous coherence in excitonic systems: conference 2020

meet the speakers | submit your abstract | register!

The Abstracts deadline is fast approaching for the 10th International Conference on Spontaneous Coherence in Excitonic Systems (ICSCE10) in Melbourne next January.



Previous news

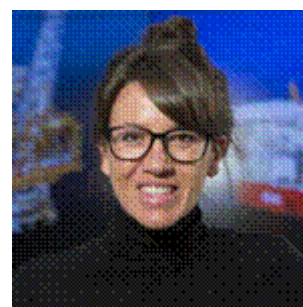
Just add iron Iron-doping of the topological insulator Sb_2Te_3 results in useful electronic and magnetic properties, quantified in a recent FLEET study at the University of Wollongong. [Read more online.](#)



Material states: Engaging with policymakers Victorian State MP Steve Dimopolous visited FLEET's Monash University labs this month, touring 2D and STM facilities with Michael Fuhrer and Semonti Bhattacharyya, and Monash Dean of Engineering Elizabeth Croft, and seeing FLEET's superconducting Mobius track in action with Dianne Ruka. [Watch online.](#)

Meanwhile FLEET's Deputy Director Alex Hamilton and Daisy Wang met with advisors in the office of **NSW State Minister for Energy and the Environment, Matt Kean.**

Welcome to new FLEET AI Dr Julie Karel (Monash University), who conducts research at the intersection of materials science and condensed matter physics to develop new materials for emerging low-energy nanoelectronic and magnetoelectronic devices. [Read more about Julie's work online.](#)



Pitch training and physics on-stage A pitch training session for 16 researchers from three ARC Centres in Melbourne introduced key communications concepts such as choosing the most effective lead, tailoring the pitch to the audience, presenting tips, and working with media. FLEET partnered with the ARC Centre for Exciton Science and the ARC Centre for Mathematical and Statistical Frontiers (ACEMS) to source this key training.

FLEET's Jared Cole (RMIT) and Carlos Kuhn (Swinburne) stretched their public outreach muscles last month, experimenting with pub physics demonstrations on the quantum nature of time and string theory magic tricks, respectively. The event was co-sponsored by four ARC COEs and the AIP.

The annual Idea Factory collaboration between FLEET and the ARC Centre for Engineered Quantum Systems (EQUS) combined pitch training with other key entrepreneur skills development, part of CSIRO's "ON" program.

Events coming up

- Swinburne Open Day 28 July
- Seminar Unconventional superconductivity Harley Scammell 29 July, UNSW
- UOW Open Day 3 August
- UQ Open Day 4 August
- Monash Open Day 4 August
- Sydney Science Fest 6-18 August
- National Science Week 10-18 August
- FLEET CIs strategic workshop & PhDs workshop 15-16 August 2019, UNSW
- RMIT Open Day 11 August
- Future Science 2040 Cathy Foley, 25 August, NSW Parliament Building
- ANU Open Day 31 August
- UNSW Open Day 7 September

SAVE THE DATE

Gordon Godfrey Workshop 25-29 November, UNSW

Participating organisations

FLEET is: The Australian Research Council Centre of Excellence in Future Low-Energy Electronics Technologies.

Participating nodes are: the Australian National University, Monash University, RMIT University, Swinburne University of Technology, the University of New South Wales, the University of Queensland and the University of Wollongong.

