

FLEET News May 2019

Congratulations to FLEET AI Jo Etheridge, who was named an Australian Academy of Science Fellow this week. And welcome to new AI Laurent Bellaiche. You can read more about Jo and Laurent below.

This edition of FLEET News also includes new cold-atom research at Swinburne, thanks to the keen FLEET volunteers at Melbourne Knowledge Week, and notes on upcoming Centre workshops.

Regards

Michael Fuhrer

Director

ARC Centre of Excellence in Future Low-Energy Electronics Technologies

Catch up on previous editions of FLEET News

In this edition:

- AAS Fellow Jo Etheridge
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Cutting-edge electron microscopy work recognised

Congratulations to FLEET AI Jo Etheridge (Monash Centre for Electron Microscopy) who has been named a Fellow of the Australian Academy of Science in recognition of new microscopy techniques developed to measure the structure of materials at the atomic scale.

[Read more about Jo's research online](#)



New member

Welcome to Prof Laurent Bellaiche, whose ongoing research collaborations with FLEET are recognised by him becoming a Centre Scientific Associate Investigator.

At the University of Arkansas (US), Prof Bellaiche leads first-principles-based theoretical studies of ferroelectrics, magnetic compounds, multiferroics and other semiconductors. Previous collaborations with FLEET CI Nagy Valanoor have sought to harness nanoscale magneto-transport in thin-film multiferroics.

[Read more online](#)

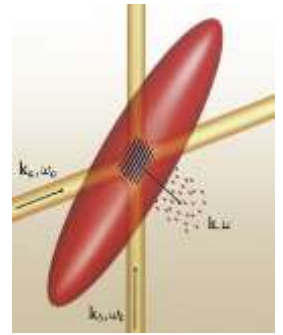


Ultra-cold lithium atoms shed light on superfluid pair formation

A new study resolves a long-standing debate about what happens at the microscopic level when matter transitions into a superconducting or superfluid state.

Correlations between pairs of atoms in an ultra-cold gas were found to grow suddenly as the system was cooled below the transition temperature.

[Read more online](#)



FLEET workshops 2019

FLEET's third annual workshop will be held at Lorne, Victoria, 8-11 December, 2hrs south-west of Melbourne along the stunning Great Ocean Road. Free transport from the city will be provided, along with on-site childcare and invigorating conversation.

Strategic workshop: UNSW August 2019 A half-year strategic meeting at UNSW in August will discuss FLEET's research milestones, review the centre strategic plan and prepare for the ARC's mid-term review.



FLEET's 2nd annual report

We've recently completed FLEET's 2nd (2018) Annual Report, telling the story of the Centre's research, equity initiatives and outreach activities over the last year.

Please check it out online, and feel free to share digitally, via [FLEET.org.au/annual-reports](https://fleet.org.au/annual-reports)



Equity resources

We might hope that sexual harassment is a thing of the past, or experienced by a minority of women, but this is not the case. [A recent US study](#) revealed that three-quarters of female physics undergraduates experience sexual harassment, leaving them alienated. Unfortunately, it's a finding that may not surprise most women in STEM, but for men it is a useful reminder that much remains to be done.

If you're seeking advice on supporting under-represented students in STEM (including women, students of colour, regional and first-generation students), you might find [this mentoring resource](#) useful.

FLEET provides up to \$10k pa as a top-up scholarship for new, female PhD students working on FLEET research.

Excitonic systems conference, Melbourne 2020

- Confirmed speakers
- Call for abstracts
- Arts Centre Melbourne

Abstracts are now being taken for the 10th International Conference on Spontaneous Coherence in Excitonic Systems (ICSCE10) in Melbourne 28-31 Jan 2020.



Thanks to our Melbourne Knowledge Week volunteers

Over a dozen FLEET researchers flew the flag for FLEET and future computing at the recent Melbourne Knowledge Week showcase.

Reps introduced the public to ICT energy use, electromagnetism, superconductivity (via FLEET's super-cooled Mobius track), and the mechanics of binary operations underlying modern computing.

[Read more online, including the list of FLEET volunteers.](#)

Previous news

Welcome to new FLEET AI Dmitry Efimkin (Monash University) who studies novel materials such as Dirac materials, graphene and topological insulators, and optical phenomena in solids, and will work with FLEET CIs Fuhrer, Parish, and Medhekar.

Also to new FLEET AI Dongchen Qi (Queensland University of Technology) who is seeking to develop high-performance diamond surface electronics and works with FLEET CIs Bao and Fuhrer. [Meet Dmitry and Dongchen online.](#)

Congratulations to FLEET's Sam Bladwell (UNSW), who won the NSW Famelab semifinal, talking about the role of electron spin in future electronics, and competed in the national finals in Perth. [Watch Sam, Semonti and Antonija's Famelab talks on the FLEET website.](#)

Excellence in Research in Australia FLEET's member universities performed extremely well in recently announced ERA results. [Read the full report online.](#)

Ferromagnetism reviewed A collaborative FLEET study reviewed recent progress in 2D ferromagnetism, and predicted new, possible 2D ferromagnetic materials. [Read more online.](#)

FLEET PI Ali Yazdani (Princeton)'s profile at the Gordon and Betty Moore Foundation is a good, introductory description of the probing of topological quantum Hall phases by Ali and his team. [Read the article online.](#)

VicPhysics Girls in Physics breakfast series FLEET's Dianne Ruka spoke to 60 future scientists in Ballarat (Victoria) in April on future computing and low-energy electronics, as well as discussing science career possibilities for girls from rural communities. [Read coverage from the Ballarat Times online.](#)

Events coming up

- **3 June** International Summit on Optics, Photonics and Laser Technologies, San Francisco
- **5 June** Seminar: Temperature and light-activated processes and transformations in nanomaterials, UNSW
- **10 June** International Conference on Materials Research and Nanotechnology, Rome
- **11 June** Quantum emitters in hexagonal boron nitride, Monash Centre for Electron Microscopy
- **19-21 June** Idea Factory, Queensland
- **20 June** Physics in the Pub Melbourne
- **21 June** 'Pitch' training Melbourne (TBC)
- **25 June** Graphene 2019, Rome

Prizes & opportunities



The Melbourne Centre of Nanofabrication and ANFF Victoria are seeking Masters or PhD interns to be partnered with industry clients to work on 2-6 month internship projects.

Australian Nanotechnology Network (ANN) funding for members to travel to Australian National Fabrication Facility nodes. Open for postgraduate nanotech students and ECRs currently studying/working in Australia who are members of ANN.



APR Intern provides internship opportunities within Australia for PhD students at various points in their candidature. See current opportunities online. A current position in Melbourne (generation of a solid model of a cutting tool) indicates skills FLEET affiliates might have, specifically programming, 3D graphics, etc.

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.

