

[Subscribe](#)[Past Issues](#)[Translate ▼](#)[View this email in your browser](#)

F L E E T

ARC CENTRE OF EXCELLENCE IN
FUTURE LOW-ENERGY
ELECTRONICS TECHNOLOGIES

FLEET NEWS

Dear <<First Name>>

With FLEET's annual workshop imminent, we have been fine-tuning plans and logistics.

We have just launched advertising for the new Women in FLEET postdoc Fellowships, and I would ask your help in circulating this in your own networks. See below for details and link.

This month's newsletter also includes a negative-mass study at the University of Queensland, a new partnership with the University of Camerino, Clarivate highly-cited researchers announcement, ICON2Dmat, the UNSW summer school on ferroelectrics, and a great profile from the University of Wollongong of FLEET's David Cortie.



You'll also find recent mentions of FLEET members in the media, and some nice writing of FLEET research by members.

And finally, there's chocolate.

Regards,

Michael Fuhrer

Director, ARC Centre of Excellence in Future Low-Energy Electronics Technologies

In this edition:

- [FLEET annual workshop](#)
- [New partnership: University of Camerino](#)
- [Negative mass \(UQ\)](#)
- [Member profile: David Cortie \(UOW\)](#)
- [Women in FLEET Fellowship](#)
- [Clarivate highly-cited list](#)
- [ICON-2Dmat materials conference](#)
- [FLEET members in the media](#)
- [Summer school on ferroelectrics \(UNSW\)](#)
- [New positions at FLEET](#)
- [Topological insulators and chocolate blocks](#)
- [Events in December](#)
- [Prizes and opportunities](#)

FLEET2018

FLEET's annual workshop is our opportunity for all Centre researchers to gather together and share research outcomes and progress.

- Pullman Magenta Shores, 2 hours north of Sydney
- 2–5 December
- FLEET.org.au/workshop2018



New partnership: University of Camerino

A new research partnership between FLEET and the University of Camerino Italy will join complementary strengths in the study of exciton superfluids.

Meet FLEET's two new Partner Investigators David Neilson and Andrea Perali, and read about excellent research results they have already achieved working with FLEET's Alex Hamilton (UNSW Science).



Negative mass investigated at UQ

A FLEET study out of the University of Queensland clarifies recent studies of negative mass, and investigates the strange phenomenon of self-interference.

In some situations, the relationship between mass and acceleration due to an applied force is not simply proportional and can depend on the impulse applied to the object. Physicists then talk about effective mass, which can even be negative.



[Read more online, including cartoons by study author David Colas.](#)

Meet David Cortie, UOW

[Subscribe](#)[Past Issues](#)[Translate](#) ▼

FLEET AI David Cortie's research at the University of Wollongong. David was featured in the University's Impact Makers campaign this month.

[Read the profile online](#), describing David's search for materials that can outperform silicon.



Women in FLEET scholarship

FLEET is seeking to appoint two outstanding, early-career female candidates as Women in FLEET Research Fellows to perform research at one of the FLEET nodes (Monash, UNSW, Swinburne, ANU or UQ – as determined by the candidate's expertise and research aspirations).

This three-year appointment (full-time, with part-time arrangements negotiable upon request) will be at a level commensurate with the research experience and performance standards for academic levels A/B. Candidates identifying as female and within five years of the conferral date of their PhD or equivalent research higher degree are eligible to apply. [Read more online.](#)



Please help us by sharing this scholarship in your network.

Highly-cited researchers recognised

Three FLEET researchers have been named in this year's Clarivate Analytics Highly Cited list, recognising researchers ranking in the top 1% by citations for their field.

Congratulations to: Michael Fuhrer (Monash University Science), Kourosh Kalantar-zadeh (UNSW Engineering and RMIT University) and Qiaoliang Bao (Monash University Engineering).

The number of Australian researchers making the annual Clarivate list has nearly doubled since 2014, and Australia is now ranked fifth in the world for highly-cited researchers in one or more science and social science disciplines. [Read more online.](#)



Are you coming to ICON2DMat?

Registration is still open for the 4th International Conference on Two-Dimensional Materials and Technologies in Melbourne. A limited number of discounted tickets for ANN members from

[Subscribe](#)[Past Issues](#)[Translate](#) ▼

- [FLEET.org.au/ICON2Dmat](http://fleet.org.au/ICON2Dmat)
- Melbourne, Victoria
- 10-13 December 2018
- ICON2DMat young scientist awards – \$1000 cash prize
- €600 in best poster prizes
- Program ([online now](#)) includes 6 plenaries, 16 keynote talks, 148 oral presentations and >130 poster presentations
- Special editorial session with editors from high-impact journals



FLEET members in the media

The kilogram is changing FLEET CI Jared Cole (RMIT) was interviewed for a BuzzFeed article about the new definition of the kilogram, and explains why he thinks the new system is both "beautiful and sophisticated". [Read more](#).

Regional exposure A recent FLEET UNSW-UOW collaboration featured in the Association of Asia-Pacific Physical Societies (AAPPS) bulletin this month – a handy opportunity to talk about FLEET research and regional partnerships to an international physics audience. [Read the article online](#).

Describing the 'that's interesting...' moment "While working on liquid metals a few years ago, I noticed that when you roll liquid metal on a substrate, the surface layer is left behind." FLEET's Kourosh Kalantar-zadeh has written [describing the initial observation that sparked recent liquid-metal research](#) for the QE Prize for Engineering.

Lens focuses on Meera Parish and Michael Fuhrer Monash University's *Lens* campaign this month focused on FLEET's Meera Parish and Michael Fuhrer, introducing readers to Moore's Law and atomically-thin materials along the way. [Read more online](#).



FLEET mission described in The Conversation

FLEET's Daisy Wang and Jared Xole feature in the Conversation this week. Their article describes, for a general, but technology-engaged audience, the issue of ICT energy use, the end of Moore's Law, and the new fields of physics being investigated at FLEET to find a solution with new, low-energy electronics. [Read the article online](#) (and please share with your peers!).

Subscribe

Past Issues

Translate ▼

THE CONVERSATION

Academic rigour, journalistic flair

Arts + Culture Business + Economy Cities Education Environment + Energy FactCheck Health + Medicine Politics + Society **Science + Technology**

The tools on our smartphones are enabled by a huge network of mobile phone towers, Wi-Fi networks and server farms. Shutterstock

Computing faces an energy crunch unless new technologies are found

Daisy Wang, UNSW and Jared Cole, RMIT University

The energy required to power the massive, factory-sized data centres that computers rely on already consumes 5% of global electricity. And that energy load is doubling every decade.

Summer School on ferroelectrics

FLEET is very pleased to again sponsor the Summer School on Ferroelectrics at UNSW, which will cover fundamental science and cutting-edge applications, catering for new and experienced researchers and students. The workshop, which will run 10-14 December, is in-part organised by FLEET Research Fellows Daniel Sando and Peggy Zhang.

See the program at unsw-ssf.unsw.edu.au



UNSW
SYDNEY

UNSW SSF 2018

Second Summer School on Ferroelectrics



FLEET is hiring: spread the word

FLEET is seeking talented researchers to fill three Research Fellow, Honours and PhD positions at Monash University, UNSW, the Australian National University, RMIT University and Swinburne University of Technology.

You can see all the jobs at FLEET.org.au/scholarships

Please help us share the word by promoting these opportunities amongst your network. For example., by [sharing FLEET's LinkedIn post](#). (Your connections on LinkedIn are probably our ideal target audience!)

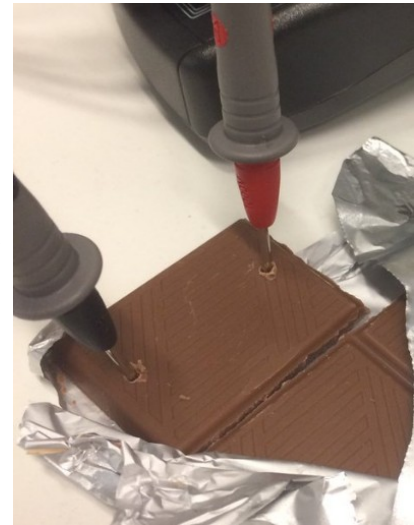
[Subscribe](#)[Past Issues](#)[Translate](#) ▼

Momma always said: a topological insulator is like a block of chocolate

Electrically, topological insulators resemble a chocolate block wrapped in foil: electrically insulating on the inside (the chocolate), but electrically conductive around the edges (the foil).

It's a very useful analogy to describe a new type of material, but we decided to test whether it's actually correct.

We tested four bars of chocolate, measuring the electrical resistance of the surrounding foil, and the chocolate. Results (and what happened to the chocolate afterwards) are [revealed online](#).



Events in December

- **30 November** FLEET alum Elizabeth Marcellina journal talk, UNSW
- **3–5 December** FLEET workshop, Magenta NSW
- **4 December** KOALA IONS conference, Sydney
- **7 December** Seminar Ali Yazdani, UNSW
- **9–13 December** Australian Institute of Physics Congress, Perth
- **10–13 December** ICON2DMat, Melbourne
- **10–14 December** UNSW Summer school on ferroelectrics, Sydney
- **14 December** Jeremy Levy Talk, UNSW

See the [FLEET intranet calendar](#) for more events.

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.

[Subscribe](#)[Past Issues](#)[Translate](#) ▼

Australian National Fabrication Facility nodes. Open for postgraduate nanotech students and ECRs currently studying/working in Australia who are members of ANN.



APR]

APR provides internship opportunities within Australia for PhD students at various points in their candidature. [See current opportunities online.](#)

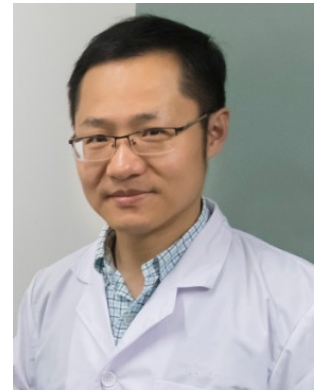
A current position in Melbourne ([generation of a solid model of a cutting tool](#)) indicates skills FLEET students might have, specifically programming, 3D graphics, etc.

[Keep an eye on the FLEET intranet](#) for other Prizes, Awards and Grants.

A number of [FLEET research fellowships](#) have recently opened. We would appreciate your help in making excellent candidates aware of these opportunities to join FLEET.

Previous news

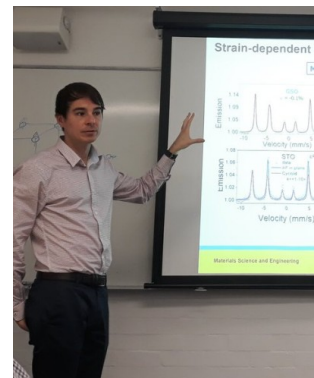
FLEET's Qiaoliang Bao at Monash University (right), with collaborators in Spain and China, discovered nanoscale squeezed light that propagates only in specific directions along thin slabs of molybdenum trioxide. Published in *Nature* last month. [Read more online.](#)



UNSW physics undergrads (left) have been measuring the quantum Hall effect (QHE), requiring precision experimental setup, under the watchful supervision of FLEET's Karina Hudson. [Read more online.](#)

FLEET's third live-streamed colloquium featured Carlos Kuhn (Swinburne) discussing low-lying excitation spectra of unitary Fermi gases. Live-streamed colloquiums help share research results across the Centre, keeping us all updated on latest FLEET research and enhancing cross-nodes collaborations.

UNSW-UQ collaboration: Dan Sando (UNSW; shown right) visited colleagues at UQ this month, describing UNSW control of spin textures using strain in oxide thin films.



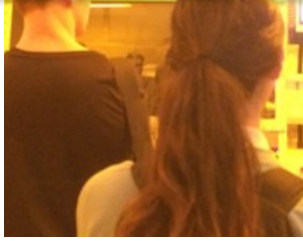
Congratulations to FLEET PhD Yonatan Ashlea Alava, winning best poster at UNSW's School Research Expo, describing artificial graphene in GaAs 2D quantum systems and creation of a topological insulator based on this artificial graphene system with strong SOI.

Physicists tour FLEET labs at RMIT Members of the Victorian branch of the AIP toured FLEET's experimental laboratories at RMIT and were briefed on research by Lan Wang and Torben Daeneke. [Read more online.](#)

Subscribe

Past Issues

Translate ▼



FLEET Chief Investigator. [Read more online](#) including a couple of links to Jared's concise, compelling descriptions of complex physics on radio and in print.



Australian Synchrotron Director Andrew Peele (FLEET Advisory Committee), has been appointed a Fellow of the Australian Academy of Technology and Engineering. [Read more online.](#)

Michael Fuhrer spoke last month at the NZ sustainable material-science event, Materialise, an event that saw significant coverage in NZ mainstream and science media. [See coverage online.](#)

Participating organisations

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



Copyright © 2018 FLEET Centre, All rights reserved.

Want to change how you receive these emails?
You can [update your preferences](#) or [unsubscribe from this list](#).

