

FLEET News

Welcome to FLEET News. We have been full steam ahead this month with preparations for the upcoming Centre Launch at Monash, which will be followed by a strategic workshop for Centre CIs, AIs and Research Fellows. It will be an opportunity to publicly celebrate FLEET, tell our story, and engage with the science community and decision makers .



FLEET researchers at the University of Wollongong had an early opportunity to engage with science policy-makers with the visit of Science Minister Simon Birmingham and ARC CEO Sue Thomas. More on that below.

Congratulations to Lan Wang and Cheng Tan, whose recent study on van der Waals materials made Nature Communication's April condensed matter highlights. Read on for this and other recent news from around the Centre.

Regards,

Michael Fuhrer

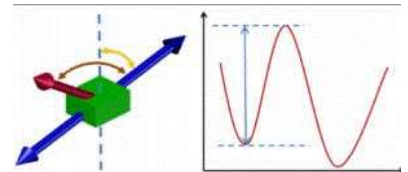
Director

ARC Centre of Excellence in Future Low-Energy Electronics Technologies

Catch up on previous editions of FLEET News

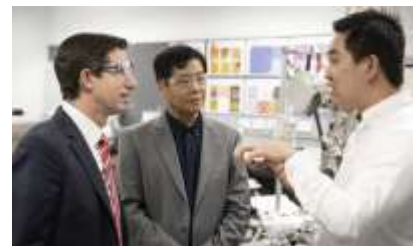
Slimming down for enhanced magnetic properties

The unusual electronic and magnetic properties of van der Waals (vdW) materials, made up of 'stacked' 2D layers, offer potential for future electronics, including spintronics. FLEET's Lan Wang and Cheng Tan (RMIT) found that one promising candidate material, Fe_3GeTe_2 (FGT), displays improved properties at reduced thickness. The paper was featured in Nature's April condensed matter highlights.



Science Minister visits FLEET labs in Wollongong

Science Minister Simon Birmingham and ARC CEO Sue Thomas visited FLEET labs at the University of Wollongong's Innovation Campus last week. Wollongong node leader Xiaolin Wang, Centre Deputy Director Alex Hamilton (UNSW) and UOW researchers gave the Minister a quick introduction to ICT energy-use issues, topological insulators and atomically-thin materials, including showing him the labs where novel materials are developed within FLEET's Enabling technology A.



Centre Launch and Strategic Research Workshop

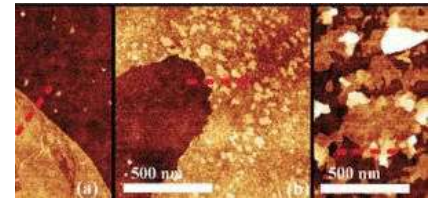
It's time to launch the FLEET The Centre will be officially opened on 12 June at Monash University by ARC CEO Sue Thomas and Monash Provost Marc Parlange. We're lucky to also have UNSW Pro Vice-Chancellor (Research) Ana Deletic, who will be event MC. The launch will showcase the Centre's efforts in inspiring schoolkids to study science.

Following on from the Launch, Centre CIs, Science AIs and Research Fellows will be meeting for a day and half to discuss research direction.



Characterising tin-oxide growth for (even) better 2D materials deposition

Last year, FLEET researchers at RMIT developed a ground-breaking new method of depositing atomically-thin (two-dimensional) crystals using molten metals, described as a 'once-in-a-decade' advance. Recently, the research team expanded the new method from controlled to ambient conditions, and characterised the growth mechanisms for key tin oxides, which should allow improved control of target oxide growth.

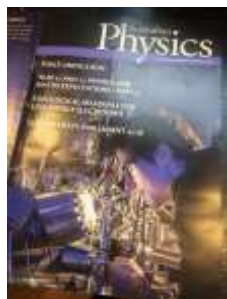


FLEET in the media

Three FLEET researchers appeared on the popular Melbourne science radio program Einstein a Go-Go in May, talking about their science. You can catch up here:



- PhD Rebecca Orrell-Trigg explained liquid-metal 2D deposition at RMIT
- Postdoc Carlos Kuhn described ultra-cold atomic science at Swinburne, and schools outreach
- CI Agustin Shiffrin talked about atomic-scale materials engineering at Monash.

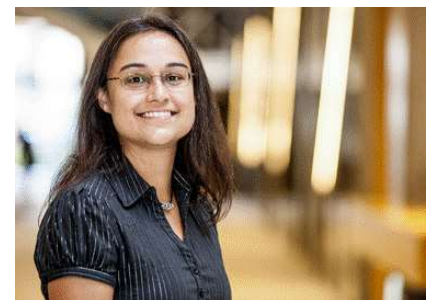


Yes, that's FLEET PhD James Collins on the front cover of this month's *Australian Physics*, which included an article about FLEET's study of electronically-smooth topological materials.

We don't have room to list all the appearances of Jared Coles' 'flux capacitor' story, so that will have to wait until next month.

News from around the Centre

Interactions within quantum batteries key to their charge advantage Monash study brings realistic 'quantum batteries' a step closer, finding that interacting quantum batteries charge faster than isolated batteries. >>>



<<<Melbourne MP/Greens Science spokesperson Adam Bandt visited FLEET's labs at RMIT, learning about ICT energy consumption and the 2D materials underpinning FLEET's search for alternative, low-energy electronics.

FLEET-nano collaboration recognised Collaboration between FLEET CI Qiaoliang Bao (Monash Engineering) and Melbourne Centre for Nanofabrication (MCN) recognised, with Qiaoliang appointed a 2018 ANFF-VIC Technology Fellow. >>>

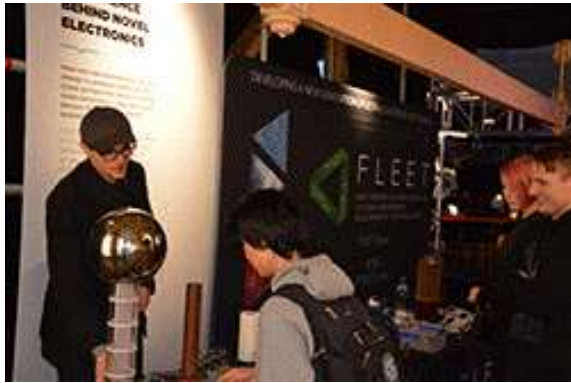


More news:

- Switching conduction mode: a step towards topological transistors
- Fulbright Scholarship for FLEET postdoc Harley Scammell
- Electronically smooth material measured at Monash
- First Women in FLEET scholarship recipient
- 10-year-old spin mystery resolved at UNSW
- Older news

Events

FLEET recently co-sponsored **Physics in the Pub in Melbourne**. As well as being a valuable platform to tell the story of FLEET in public (thanks to a great talk by RMIT PhD student Rebecca Orrell-Trigg), it was a great opportunity to work with Australia's main advocacy group for physics, the AIP, and with three other ARC Centres of Excellence to highlight the diversity of physics research within ARC COEs.



Melbourne Knowledge Week Twenty generous FLEET and affiliate volunteers explained the Centre's research mission and a selection of home-science demonstrations at a recent week-long showcasing of Melbourne innovators and innovation. Melbourne Knowledge Week gave FLEET an opportunity to talk to the public about science outreach, and involve them in hands-on activities such as a van de Graaff generator and laser maze (which seemed to be rewired each morning by a succession of FLEET experimental physicists with time on their hands!) Thanks to all who volunteered.

Annual Report

Hopefully by now you've had the chance to read FLEET's 2017 Annual Report – the first comprehensive telling of the Centre's story, available at FLEET.org.au/annual-reports. Feedback is welcomed.



Hosting international 2D materials conference

FLEET brings the International Conference on 2D Materials and Technologies to Australia this December.

The conference will cover graphene, transition metal dichalcogenides, black phosphorus, topological insulators, perovskites, MX3 and other new forms of 2D materials, as well as developing applications in electronics, photonics, optoelectronics, catalysis, bio-medical, environmental and energy.



- FLEET.org.au/ICON2Dmat
- Melbourne, Victoria
- 10-13 December 2018

Prizes and opportunities

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



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.

A number of Australian Institute of Physics awards hit their nomination deadline today (1 June), so check out the list and consider who you could encourage to apply. Most people who nominate for a prize say they did it after encouragement from peers and supervisors.

Building resources for women in science

We need more women at the public face of science. [500 Women Scientists](#) is a database of female scientists accessible for media, conferences, policy makers etc. In Victoria you'll find a similar resource at [Here she is](#). Let us know any others.

[Nature](#) has instigated two new annual awards to recognise women in research: an individual awards for ECRs, and an awards for individual or organisation driving girls or young women to engage with science. Deadline 11 June. Details online.

Help spread the news

If you're on [Facebook](#), [Twitter](#) or [LinkedIn](#), we would love it if you followed our accounts and shared our posts, particularly with other colleagues in the field. If a friend or colleague might be interested in our news, [click here to send them an invite](#). Or let us know and we'll invite them.

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Participating organisations

FLEET's 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.



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