



FLEET News: February 2020

Dear Errol

As incoming Chair of FLEET's Equity and Diversity Committee, I first want to thank Elena for her efforts in this space for the past three years.



FLEET has ambitious goals in equity this year, informed by a comprehensive survey of Centre members: improving feedback measures, improving cultural awareness, streamlining training and education, increasing the visibility of women in FLEET, and expanding mentoring.

In this month's newsletter we also share observations from last week's Catalysing Gender Equity workshop in Adelaide. For me, the conference highlighted how many great initiatives are already in action, improving gender equity around Australia, however, it's also clear there is still a lot of work to do!

Read on for more about the workshop, plus the usual wrapup of research news and other events from around the Centre.

Regards,

A/Prof Jeff Davis

FLEET Chair: Equity & Diversity

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Becoming part of the (equity) solution

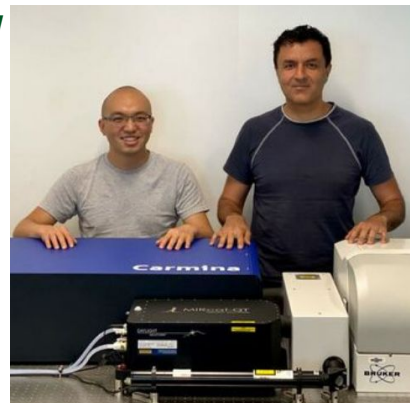
Three FLEET representatives at this month's Catalysing Gender Equity workshop in Adelaide, which celebrated and shared successful actions, demonstrated impact and fostered collaboration to achieve change.

Jeff Davis, Tich-Lam Nguyen and Dianne Ruka came away with many excellent ideas to investigate. [Read more about the conference online.](#)



Studying phonon-polaritons at UNSW

Phonon-polaritons in layered crystals have peculiar properties where they occur at the boundary between materials. A new study led by Kourosh Kalantar-zadeh and Jiong Yang (UNSW) studied phonon-polaritons in thin-layer hexagonal boron nitride (hBN). [Read more online.](#)



First 3 FLEET ECR grants awarded

The first round of FLEET ECR Grants will fund research trips to Italy, Singapore, and the US ECR Grants fund travel for ECRs and PhDs, developing networks and professional and scientific skills, including supporting travel to research facilities to learn



new techniques, form new collaborations, or complete training.

[Read about the first three recipients \(and next round of grant applications!\) online.](#)

Hosting Materials Australia at UNSW

A group of Materials Australia members were hosted on a tour of FLEET's labs at UNSW this month, seeing Nagy Valanoor's fabrication labs, Jan Seidel's STM and AFM characterisation equipment, Alex Hamilton's low-temperature measurement laboratories for quantum electronic devices, as well as hearing about the role of novel materials in the search for new, ultra-low energy electronics.



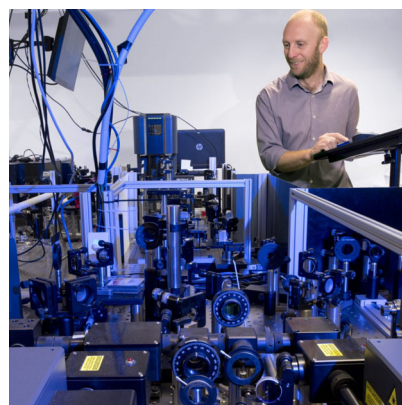
Qi-Kun to assist IOP engagement

FLEET Partner Investigator Qi-Kun Xue (Tsinghua University) announced as new UK Institute of Physics chief scientific advisor to China, with a brief to help strengthen IOP's relationship with scientific community in China. [Read more online.](#)



Ultra-fast spectroscopy workshop getting everyone up to speed

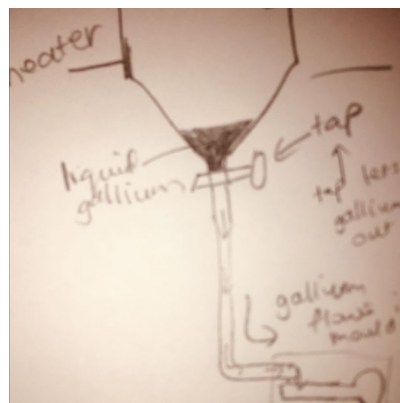
FLEET and the Exciton Science COE sponsored an Ultrafast Laser Spectroscopy Mini-Symposium at Swinburne this month. The workshop brought together the ultrafast laser spectroscopy community in Australia and New Zealand, showcasing local ultrafast laser spectroscopy research and capabilities. [Read more online.](#)



Liquid metal outreach project

Dianne Ruka (FLEET's outreach coordinator) wants to create a liquid-metal demo for public and lab activities. For example, a glass/clear tank with water and a heater, so gallium could be melted and then drained to solidify in shaped moulds.

FLEET members have been invited to help with the design (or re-design if they have a better idea!).



International semiconductor conference

Are you presenting your science at the premier forum for semiconductor physics, in Sydney this August?

Abstract submission closes this coming Monday (2 March).



MacDiarmid visit & grants

Simon Granville, a Principal Investigator of the MacDiarmid Institute, visited FLEET collaborators at RMIT, Monash, UNSW and the University of Wollongong in February to plan upcoming exchanges as part of several FLEET-MacDiarmid research collaborations funded in the 1st round of reciprocal MacDiarmid-FLEET collaborative grants in 2019.



The 2nd round of MacDiarmid-FLEET collaborative grants is now open, with \$25k available. The grant extends beyond research programs to include also initiatives to improve equity in STEM, outreach, or public engagement.

Pint of Science

Pint of Science are still seeking volunteers (all cities) and speakers (some cities) for 2020.

- If you're in Melbourne and keen to get on stage, contact **Iolanda Di Bernardo** for details
- If you're in another city, register interest in volunteering **online**



Internships, grants and other opportunities

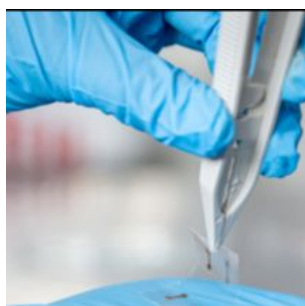
Current research internship opportunities listed at [Australian Postgraduate Research Intern](#) include network simulation, spectroscopy analysis, data organisation and speech recognition. APR Intern provides short-term university research collaborations.

Other opportunities:

- **FameLab** deadline extended to 3 March
- **New FLEET postdoc roles** at NTU and Monash
- **Multiple postdoc jobs** available in new Nano-Cybernetic Biotrek (NCB) research lab, MIT
- **Women in FLEET Scholarships** are open to students who identify as female and are accepted into an Honours or PhD program to work with any one of FLEET's investigators. Considered twice a year in June and November. Submit applications anytime.

Previous news

Welcome to the five new incoming Chairs of FLEET's governing committees. The five new Chairs will each bring renewed enthusiasm and new ideas to these important committees. Thanks in particular to the two AIs taking this step up to Centre leadership, David Cortie and Torben Daeneke.



FLEET's Torben Daeneke worked on a RMIT-Monash-UNSW collaboration to develop an ultra-thin, ultra-flexible electronic material, able to be printed and rolled out like newspaper, for the touchscreens of the future. The touch-responsive technology is 100 times thinner than existing touchscreen materials and so pliable it can be rolled up like a tube. [Read more online.](#)

Congratulations to FLEET's Eli Estrecho and wife Roxanne, on the arrival of baby Alab. From Eli: "Alab is a Filipino word for 'fire' or 'burning' or can be 'burning passion' (we decided on the name before beginning of this year's tragic unfortunate bushfires). We do hope and pray that the people's *burning passion* and compassion will accelerate Australia's bushfire recovery."





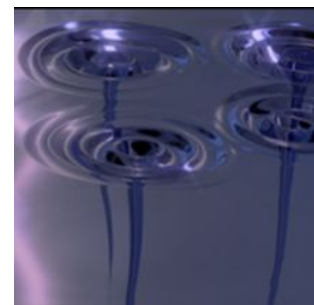
Inspired by superfluids' near-zero surface tension, FLEET's Xiaolin Wang and Frank Yun (UOW) discovered voltage-induced superfluid-like penetration in liquid gallium at room temperature for the first time. [Read more online.](#)

Designer defects' for domain-wall nanoelectronics A FLEET-UNSW study published this month in Nature Communications presents an exciting step towards stable domain-wall nanoelectronics. Engineering defects in ferroelectrics provides the key to massively improved polarisation stability, over one year (a 2000% improvement). [Read more online.](#)

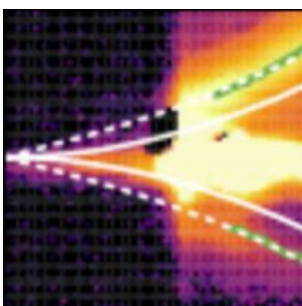


Congratulations to FLEET's Elena Ostrovskaya, whose promotion to full Professor at the ANU is recognition of her brilliant research and hard work. Elena leads FLEET's exciton-superfluid research theme and as outgoing Chair of the Centre's equity & diversity committee led FLEET equity initiatives from 2017-2019.

Self-forming quantum liquids on a silicon chip could revolutionise our understanding of turbulence – "the oldest unsolved problem in physics" – enabling new, precise navigation technologies. [Read more about this FLEET-UQ collaboration with EQUUS online.](#)



FLEET Director Michael Fuhrer was one of 80 ARC Laureates to sign an open letter on bushfires and climate change, released last month. [Read coverage online](#), or [read the letter.](#)



Quantum fluids are not forever. A FLEET collaboration makes the first detection of 'ghost particles' from Bose-Einstein condensates. The ANU/Monash study observed quantum depletion for the first time in a non-equilibrium condensate. [Read more online.](#)

Events coming up

- **Melbourne Centre for Nanofabrication (MCN)** induction day, Vic, 2 March
- **Melbourne Knowledge Week**, 11-17 March
- **FLEET seminar and colloquium (Christos Panagopoulos NTU)**, Monash, 18 March
- **FLEET-wide streamed seminar**, 2 April

- **FLEET industry relations workshop**, RMIT, 29 April
- **FLEET-wide streamed seminar**, 7 May
- **Pint of Science**, Australia, 11-13 May
- **Girls in Physics Breakfast**, Monash, 2 June
- **International Conference on the Physics of Semiconductors** (ICPS), Sydney, 9-14 August
- **New Scientist Live**, Melbourne, 14-19 August

Participating organisations

FLEET is The Australian Research Council Centre of Excellence in Future Low-Energy Electronics Technologies. Read more about our [participating nodes](#) and [partners](#) online.



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FLEET Centre
 c/-School of Physics & Astronomy, Monash University
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