

FLEET News: February 2021

2021 continues to keep us on our toes. In February we went into lockdown in Victoria...and out again, and vaccines have started rolling out (was that really all just this month?)



I enjoyed immensely reading all the stories on social media on International Day of Women and Girls in Science from around the world. Have a look below for some personal stories from our women in FLEET.

A couple fascinating science stories below: Marina shows how molecules can talk to each other over (relatively) long distances through the metal on which they sit, and Eli observes the sloshing of an exciton-polariton condensate in a bucket, which reveals clues about how the condensate interacts with the bath of surrounding uncondensed excitons.

Lastly, a beautiful reminder that life goes on: UNSW's Cecilia welcomes her baby Oliver to the world!

Regards,
Prof Michael Fuhrer
Director, FLEET

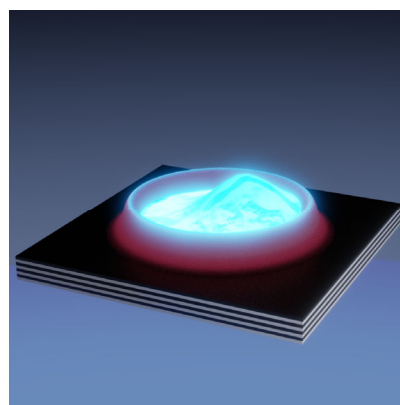
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'Sloshing' superfluids at ANU

A new study led by ANU's Eliezer Estrecho reveals superfluid properties in light-matter fluid in a 'bucket' formed by containment lasers. The team serendipitously observed the wavy motion of the quantum fluid in an optically-controlled bucket, gaining new insights of the intriguing superfluid properties of this peculiar, hybrid light-matter system.



[Read more online](#)

Harnessing socially-distant molecular interactions

Could long-distance interactions between individual molecules forge a new way to compute? Based on new study led by FLEET PhD student Marina Castelli, future computers could use the changing shape of electronic states induced by these interactions as individually addressable units.



[Read more online](#)

Why do you love working in science?

To mark Women in Science Day this month, FLEET's Iolanda Di Bernardo (Monash) asked other women in FLEET what it is that they love about being a scientist, and investigated the question 'why do we need a special day to celebrate women in science?'

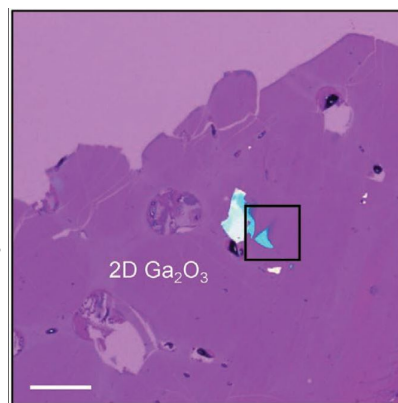
[Read the answers online](#)



Creating armour for fragile quantum technology

A FLEET ANU-led collaboration has invented the equivalent of 'body armour' for extremely fragile quantum systems, which will make them robust enough to be used as basis for new gen low-energy electronics.

[Read more online](#)



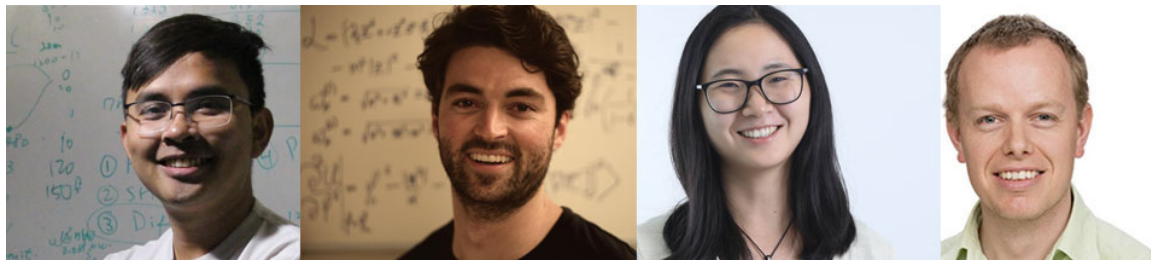
FLEET reps at Science meets Parliament

FLEET will send four researchers to STA's annual **Science Meets Parliament** event, which will be fully online in 2021.

The Centre's four ECR delegates in 2021 are Eli Estrecho (ANU), Peggy (Qi) Zhang (UNSW), Gary Beane (Monash) and Harley Scammell (UNSW).



FLEET is a silver sponsor of this year's Science Meets Parliament. [Check out the 2019 event.](#)



Equity and diversity at FLEET

Help FLEET celebrate diversity by marking specific national and/or international days. **Please suggest** cultural days or events the Centre could celebrate.

FLEET continues to provide access to equity and diversity issues training through the Diversity Council of Australia, as well as topics identified by members.

Victorian-based women interested in helping inspire the next generation of scientists may be interested in **Ecolinc's** June and October programs, and the new, online STEMex project.

On **International Women's Day** (8 March) FLEET will recognise the diversity of FLEET women - we have 8 women in FLEET from 15 countries.

Research commercialisation – 3 March

Scientist, educator and entrepreneur Dr Erol Harvey—founder of the world-leading microfluidic engineering company MiniFAB—will present a special FLEET seminar this week, sharing his significant experience in research commercialisation and entrepreneurship.

[Sign up online.](#)



FLEET live-streamed seminar: reservoir computing – 4 March

UWA's Mikhail Kostylev will describe reservoir computing, a specific type of a neural network suitable for modelling complex dynamical systems. All are welcome to both talks.

[Register online.](#)



Congratulations to FLEET's ECR authors this month

Congratulations to Pavel Kolesnichenko (now a postdoc at Lund University), Hareem Khan (postdoc at CSIRO), Eliezer Estrecho, Maciej Pieczaka and Matthias Wurdack (all at ANU) who are first or second authors in [our most-recent publications](#).



UNSW team update: Oliver Bromhead-Bloise

Congratulations to UNSW's Cecilia and Andrew Bromhead-Bloise, who welcomed Oliver to the family at the end of December.



Development opportunities

FameLab is a global science-communication competition for early-career researchers in STEM. Applications close end April.

[Apply online.](#)



Prime Minister's Prizes for Science nominations close 9 March, and **L'Oréal-UNESCO For Women in Science** applications close tonight (1 March).

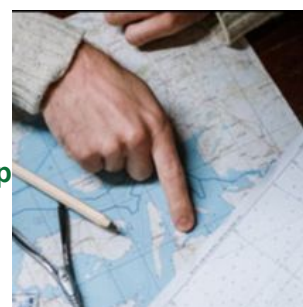
Some current outreach skills and development opportunities include **L'Oreal Women in Science** mentoring, **Techgirls coaching**, **In2science** mentoring, **CSIRO STEM Professionals in Schools**, and **Pint of Science** (seeking presenters and volunteers).

At FLEET:

- Applications for **FLEET's PhD writeup scholarships** are accepted monthly.
- **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

Putting FLEET science on the map FLEET's quest for topological transistors took a significant step towards wider recognition in the semiconductor industry in 2020 via its first inclusion in the global industry 'roadmap', the IRDS. [Read more online](#) and [see the roadmap on the FLEET intranet](#)



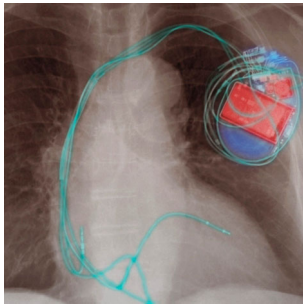
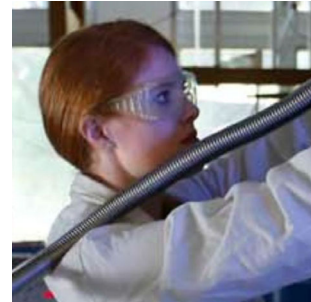
Using exotic patterns to unlock liquid-metal

physics Pattern formation and pattern recognition entertains children and scientists alike. A CASLEO-MacDiarmid collaborative study explains exotic patterns, counter to Turing's theory, forming on the liquid metal gallium. [Read more online](#)

Previous news

One-dimensional nanowires fertile ground

for Majorana modes Quantum nanowires are fertile ground for Majorana zero modes, which are their own antimatter particle. This UNSW Physics study has exciting applications in fault-resistant topological quantum computers and superconductivity. [Read more online](#)

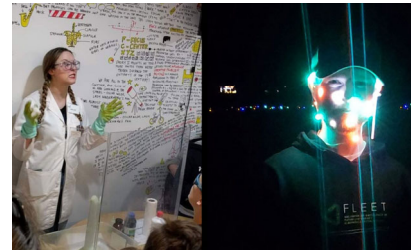


Nano-thin piezoelectrics advance self-powered electronics New ultra-efficient, nano-thin materials could advance self-powered electronics, wearable technologies – and even deliver pacemakers powered by heartbeats. [Read more online](#)

Swinburne-RMIT collaboration

Congratulations to FLEET's

Mitch Conway (ultrafast spectroscopy at Swinburne University of Technology) and Abby Goff (liquid metal 2D TMD synthesis at RMIT) who formalised their research partnership over the summer break.



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.



