

## FLEET News: May 2024

It was great to collect 140 members, affiliates and partners together for the FLEET Landing event at Monash this week, celebrating seven years of the Centre's impact across a broad spectrum of areas. As well as scientific discoveries, we heard how FLEET has created relationships between researchers, improving the scientific and work culture in many ways.

Discussions afterwards hopefully setting up multiple ongoing collaborations.

If you weren't able to join us, please see writeup, images and videos from the event [below](#).

This penultimate edition of FLEET News also includes a cool liquid-metal story, member and alumni recognition, quantum-sensing funding and the first round of talks for 2024 Women in Physics lecturer Sue Coppersmith.

Regards,

**Alex Hamilton**

Deputy Director, FLEET




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- [FLEET Landing event](#)
- [FLEET Legacy website](#) - feedback please!
- [Surfaces on the move: dynamic liquefaction](#) (RMIT)
- [Internship report](#) (Monash/ANSTO)
- [Recognition for research services](#) (RMIT)
- [Quantum sensing funding](#) (Monash)
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- [Qile Li exceptional PhD recognised](#) (Monash)
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- [Better Futures Innovation Challenge wraps up with a win](#) (Monash, UOW)
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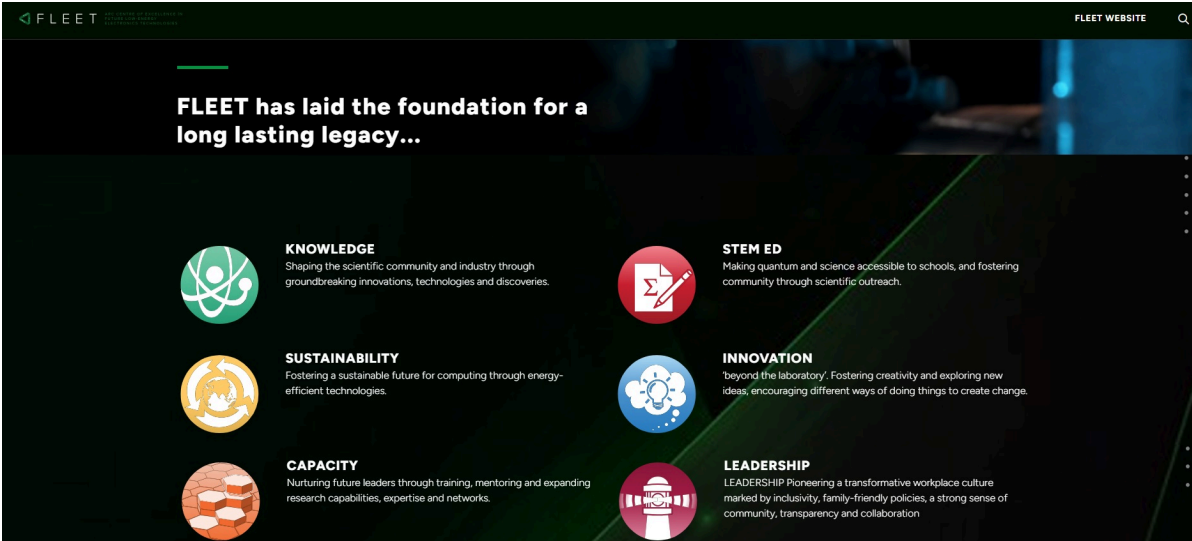
## FLEET Landing celebrates Centre achievements

Around 140 FLEET members, friends and partners gathered at Monash yesterday to celebrate FLEET's achievements over a seven-year span 2017–24. Introduced by MC Prof Joanna Batstone (Monash), who sits on the FLEET advisory panel, five FLEET members spoke first about the Centre's impacts in key areas of significance, followed by talks from Mike Ryan (Monash), Alice Ross (Australian Research Council) and Amanda Caples (Victorian Chief Scientist, pictured).

[Read more, watch the talks on YouTube, and see the live-graphics visualisation, here.](#)

## Legacy site

At the completion of the event Prof Batstone launched the FLEET Legacy website, which will be the repository of FLEET impact stories moving forward. A handful of case studies feature on the site already and more will appear in the next months. [Visit legacy.FLEET.org.au](https://legacy.FLEET.org.au)

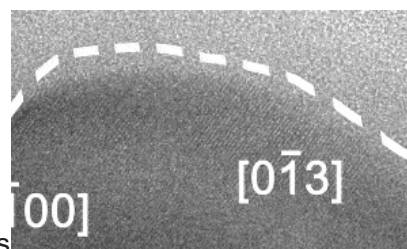


**FLEET** has laid the foundation for a long lasting legacy...

- KNOWLEDGE**  
Shaping the scientific community and industry through groundbreaking innovations, technologies and discoveries.
- STEM ED**  
Making quantum and science accessible to schools, and fostering community through scientific outreach.
- SUSTAINABILITY**  
Fostering a sustainable future for computing through energy-efficient technologies.
- INNOVATION**  
"beyond the laboratory". Fostering creativity and exploring new ideas, encouraging different ways of doing things to create change.
- CAPACITY**  
Nurturing future leaders through training, mentoring and expanding research capabilities, expertise and networks.
- LEADERSHIP**  
LEADERSHIP Pioneering a transformative workplace culture marked by inclusivity, family-friendly policies, a strong sense of community, transparency and collaboration.

## Liquid-solid surface is not so solid

The boundary between solid metal and liquid metal can be much less 'solid' than we ever suspected. Caiden Parker and Torben Daeneke at RMIT discovered that the liquid-solid boundary can fluctuate back and forth, with metal atoms near the surface breaking free from their crystal lattice. The exciting new fundamental discovery has potential application ultimately where-ever metal alloys are utilised. [Read more online.](#)



See coverage at [Phys.org](https://www.phys.org) / [Nanowerk](https://www.nanowerk.com) / [Nanotechnology World Assoc](https://www.nanotechnologyworld.com)

## Internship

Sangeet Kumar reports on his experience as the inaugural FLEET intern, which he says broadened his knowledge of scientific techniques. [Read Sangeet's report.](#)



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## Recognition for Nicci

Congratulations to ex-FLEET (now COMBS) member Nicci Coad, whose foresight, dedication, and passion in helping RMIT researchers in both Centres was recognised by the RMIT Research Services Award.

Nicci, and Brooke Nati, jointly won the award for their stakeholder management, processes, monitoring and tracking Centre success, event management, and building Centre relationships and social events (which is integral when you're trying to build trust and connection between interdisciplinary researchers).



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## Quantum sensing funding

Michael Barson (Monash) received ARC Early Career Industry Fellowship funding towards further research into quantum sensing technologies, focusing on communication and navigation solutions for environments where conventional methods are inadequate. This work, in collaboration with industry partner DefendTex, aims to advance quantum magnetic sensing technology, enhancing navigation and communication in undersea and underground conditions.



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## Congratulations Dr Mousavi

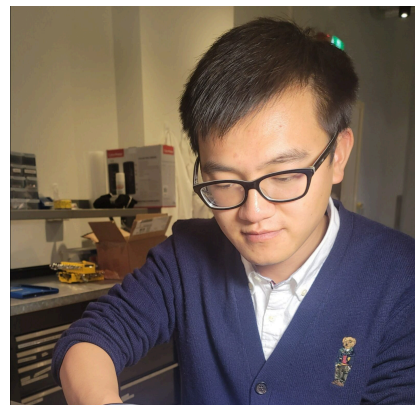
Congratulations to Maedehsadat Mousavi who received her PhD this month at UNSW



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## Qile Li Robert Street Doctoral Prize

LEET alumni Qile Li received the Robert Street Doctoral Prize this month, an annual prize awarded to the best PhD thesis in the Monash School of Physics and Astronomy, and recognising Qile's PhD thesis on ARPES characterisation of 2D materials. Qile received the award virtually as he is now working at Stanford University, continuing his work with time-resolved ARPES study of twisted bilayer materials.



## New COE Pride network

The new ARC Centres of Excellence Pride Network provides a discussion and networking forum for LGBTIQ+ folk, encouraging community-building and collaboration. This will be a space for discussing highlights and challenges, sharing advice and resources, and planning projects. [See more information online](#), including contact details to join the network.



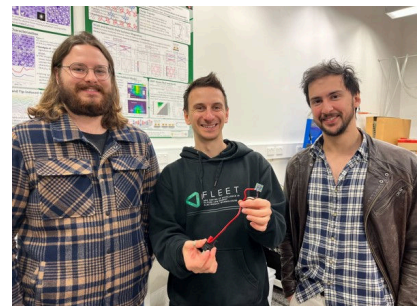
## Women in Physics tours kicks off

Sue Coppersmith's Women in Physics tour kicked off in May, introducing over 250 students, teachers and public to the life of a theoretical physicist at five events around Melbourne. The busy three-day schedule included a public lecture, two Girls in Physics events, and FLEET/AIP seminar. [Read more online](#).



## FLEET(ish) team takes out Better Futures Innovation Challenge

The 2024 Better Futures Innovation Challenge was finalised this month, with the three teams shortlisted at the hackathon event in March presenting their progress to a panel of judges and stakeholders. We're pleased to announce that the ultimate winners were a team including FLEET members (Julian Ceddia and Errol Hunt) and affiliate Kyle Portwin (UOW, ANSTO), Team Q.E.D. proved their entrepreneurial spirit by using their winnings to bring the team together and lab-prototype their idea for an ultra-sensitive,





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## Authors in May

Congratulations to our early-career researchers who were authors on papers published this month: Aydin Keser, Ben Lowe, Bernard Field, Caiden Parker, Hong Liu, Jack Engdahl, Julian Ceddia, Matt Reeves and Pankaj Sharma.



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## Physics in the Pub, Sydney

Nominations are open for performers at Physics in the Pub, 27 August in Sydney. [See details online.](#)

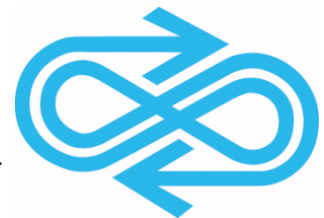
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## Finite temperature non-equilibrium superfluid workshop, September

Surfers 1–5 September 2024: Finite-temperature non-equilibrium superfluid systems FINESS2024 will bring together theoretical and experimental expertise at the forefront of research in degenerate ultra-cold matter, polariton-exciton condensates, and strongly-correlated and open quantum systems. Co-sponsored by FLEET and EQUS at Surfers on the Gold Coast. [Details online.](#) Submissions from people of all career stages (including PhD students) are encouraged.

## AIP / opto-microelectronics conference, December

Melbourne 2–6 December 2024: The Australian Institute of Physics Congress, co-located with the Conference on Optoelectronic and Microelectronic Materials and Devices (COMMAD), will be held at the Melbourne Convention Centre. See [AIP-congress.org.au](http://AIP-congress.org.au) for further details.



The AIP Congress will feature a FLEET dinner. Contact [Jeff Davis](#) and [Kirrily Rule](#) for details.

## First Australian workshop on quantum light information, matter and electronics (QLIME), December

Melbourne 8–12 December 2024: [QLIME](#) will connect leading Australian and International researchers in the fields of quantum light, information, matter, and electronics to foster collaboration

# Advanced Materials & Nanotechnology, February

Christchurch NZ 9–13 February 2025: The Conference on Advanced Materials and Nanotechnology (AMN11) will cover a broad variety of topics in nanotechnology and materials science, bringing together material scientists, chemists, physicists, biologists and engineers. **Registration is open now.**



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## Jobs board

The FLEET “jobs board” at [FLEET.org.au/jobs-board](https://fleet.org.au/jobs-board) is a useful resource for people looking for future positions. If you know of any positions of interest, let us know and we'll add them. Group leaders, we're happy to list your new positions here too.

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## Catch up on past talks

All FLEET seminars and talks are available to catch up on YouTube:

- Ilya Eremin (Ruhr-Universität Bochum) **'Magnetic' mechanisms of unconventional superconductivity: entering the Ni-age**
- Susan Coppersmith (UNSW) **Optimising silicon/silicon-germanium quantum dot qubits**
- Oleg Yazyev (École Polytechnique Fédérale de Lausanne) **In-silico discovery of novel topological materials**
- Shu Ping Lau (Hong Kong Polytechnic) **Ferroelectricity in 2D heterobilayers**
- Michele Governale (MacDiarmid) **Corner states in 2D topological insulators**

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## Grants and opportunities

**Main Sequence Ventures** (CSIRO's investment arm) deep-tech newsletter features over 40 companies with 300+ jobs on offer. **Sign up for the newsletter** to stay informed.

For ongoing outreach/development opportunities see **In2science** mentoring, and **CSIRO STEM Professionals in Schools**.

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## Live Centre stats

Ever wondered how many people have been in FLEET, how many ARC Laureates, Future or DECRA Fellows, collaborative publications or citations? All these stats and more are updated live at [FLEET.org.au/statistics](https://fleet.org.au/statistics)

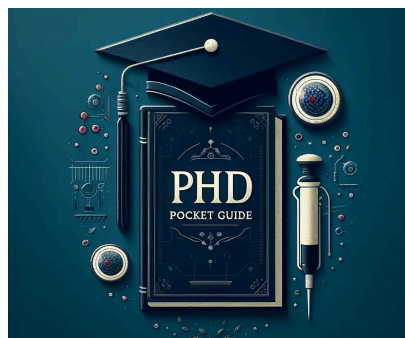


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## Mitch's guide for PhD students

In a series of 'PhD Pocket Guide' chapters, FLEET alum Mitch Conway shares some of the skills and strategies, tricks and tactics he learned during his own PhD journey, which could be helpful for others on that journey. Episodes so far:

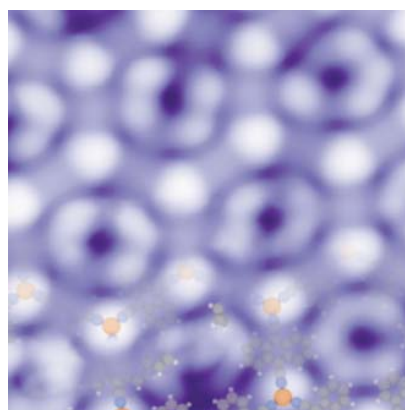
- How to get the most out of a conference
- Defining a successful PhD
- Beating burn-out
- Planning a conference talk
- Making 'paper worthy' figures
- How to really get your head around plots in academic papers, and
- Presenting at a conference.



## Switching a kagome MOF

A *Nature Comms* study led by Benjamin Lowe and Augustin Schiffrin (Monash) revealed a switchable, atomically-thin metal-organic material, with electron interactions in the 2D MOF material creating an unusual electrically-insulating phase in which electrons are frozen. By reducing the population of electrons, the authors are able to unfreeze the remaining electrons, allowing for controlled transitions between insulating and electrically-conductive phases.

**Read more online.**



See coverage at [Phys.org](#) / [Nanowerk](#) / [Nanotechnology World Assoc](#) / [Electronics Online](#) / [Semiconductor Engineering](#) / [Supercomputing Online](#)

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## 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.



**Australian Government**  
**Australian Research Council**