

**FLEET News: June 2023**

FLEET has been busy preparing for the Centre's annual workshop next week in Lorne Victoria. Watch [@FLEETCentre](#) for updates.

See stories below from around the Centre on a new neuromorphic chip at RMIT, outreach activities inspiring future scientists in NSW and Victoria, and new Centre initiatives in mentoring and industry internships.

Michael Fuhrer  
Director, FLEET




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**In this edition of FLEET News:**

- [Neuromorphic chip](#) (RMIT)
- [Outreach careers expo](#) (UNSW)
- [Extended mentoring program](#)
- [Industry internships](#)
- [Jobs board](#)
- [Quantum electricity for primary kids](#) (Monash, RMIT)
- [FLEET ECR authors this month](#)
- [Past talks and opportunities](#)

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## Neuromorphic chip

A new neuromorphic chip developed by Sumeet Walia, Torben Daeneke and the team at RMIT uses brain-like analogue processing to process quickly and efficiently using minimal energy, with potential applications in bionic vision, autonomous operations in dangerous environments, shelf-life assessment of food, advanced forensics, and with the ability to make rapid, complex decisions such as in self-driving cars. Read more online at [FLEET.org.au/neurochip](https://FLEET.org.au/neurochip)



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## Careers expo for future scientists

"With STEM you can..." Tiziana Musso, Zhi Li and Kath Tajer (FLEET/UNSW) joined outreach coordinator Jason Major at the CSIRO careers expo in Sydney this month engaging future scientists by demonstrating hands-on magnetic and graphene demonstrations, van-der-Graff generator, jumping rings and graphite circuits.



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## Extended mentoring network

A dozen ARC CoEs, with a combined staff of over 1500 academics and industry professionals of all levels, have combined forces to provide members a **significantly extended mentoring support pool**. Launched this month, the program provides FLEET members a unique opportunity to start a mentoring relationship with researchers and industry professionals from any of the 12 participating Centres of Excellence.

[Read more.](#)

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## Industry internships opportunity

New route to valuable 'on the floor' industry experience for FLEET PhD and Masters students via three-month industry internship placements will allow Centre members to:

- Apply their HDR training to an industry challenge
- Increase employability and fast-track their career
- Receive a \$3000 monthly student scholarship.

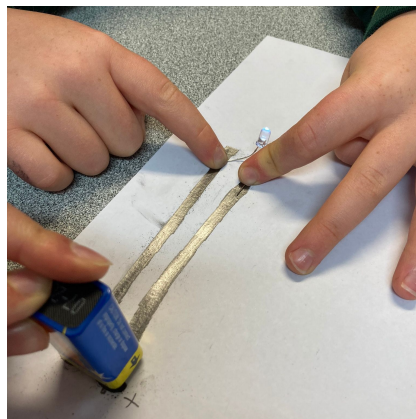
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## New jobs board

Prompted by a couple of recent positions we thought could be interesting for FLEET members, partners and affiliates seeking future positions, we have started a "jobs board" on the Centre website at [FLEET.org.au/jobs-board](https://www.fleet.org.au/jobs-board) If you're looking for future positions (or if people in your network are), we hope this might be a good addition to places to watch. 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.

## Quantum and electricity at Ashburton Primary

FLEET volunteers Kenneth Choo/Enamul Haque (Monash) and Caiden Parker (RMIT) were teaching quantum/electricity at Ashburton Primary last week – coaching the kids through the thought processes from Bohr model atoms (electron in a precise position) to electron clouds and 'wavy' electrons.



FLEET has significantly expanded our Forces and Energy teacher resource examining energy from the physics of Newton to Einstein, to the wavy behaviour of sub-atomic particles such as electrons. [Read more online.](#)

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## FLEET ECRs publishing in June

Congratulations to our early-career researchers who were first, second or third authors on papers published this month: Ali Zavabeti, Baoyue Zhang, Dawei Zhang, Mohammad Ghasemian, Richard Fuchs, Ruohan Yu, Weiyao Zhao and Yun Li. See more in [FLEET publications](#).



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## Catch up on past talks

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

- Päivi Törmä (Aalto Uni) **Quantum Geometry in flat-band superconductivity, BEC, light-matter interactions & nanophotonics**
- Kevin Daniels (Maryland) **The carbon scaffold: Building next-gen materials & devices on quasi-freestanding epitaxial graphene**
- Stefan Maier (Monash) **In a tight spot: what to do with light in small spaces**
- Abdulhakim Bake (UOW) **Engineered order-disorder transition at surface of topological insulators manipulating electronic properties**



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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.

**Nano Letters and ACS's new Seed Grants competition** will provide US\$2500 for high-risk, high-reward nano' research proposal ideas from later-stage graduate students (third year+).

For ongoing outreach/development opportunities see [In2science](#) mentoring, and [CSIRO STEM Professionals in Schools](#).

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## Previous news

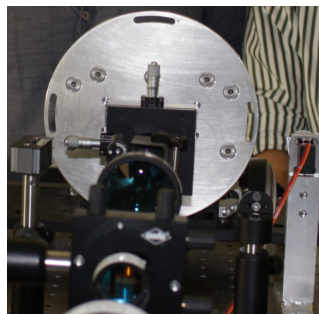
**Michael Fuhrer Academy of Science Fellow** FLEET Director Michael Fuhrer (Monash) was named last month an Australian Academy of Science Fellow, joining FLEET's Jo Etheridge (Monash, 2019), Catherine Stampfl (Sydney, 2019) and Susan Coppersmith (UNSW, 2021). [Read more online](#).



**Alex Hamilton Industry Fellow** FLEET

Deputy Director Alexander Hamilton UNSW was named an Australian Research Council Industry Laureate Fellow. [Read more online](#) about the new Fellowships and partnership with Diraq, unleashing the combined power of electrons and holes for quantum computing.

**New CI Torben Daeneke** FLEET is pleased to announce that Dr Torben Daeneke is now a Chief Investigator in FLEET. As a Scientific Associate Investigator in FLEET (RMIT node) since the outset of the Centre, Torben has been a prodigious contributor to FLEET's research effort as well as FLEET's governance and industry relations efforts. [Read more online](#).



**Negative mass in excitons at ANU** Under certain conditions the dispersion of exciton polaritons is inverted – equating to a negative mass. The cause turns out to be losses due to interactions between exciton-polaritons and phonons in the atomically-thin semiconductor. [Read more online](#).

**Schmidt fellowship to Matthias Wurdack** Congratulations to Dr Matthias Wurdack (FLEET/ANU), who has received a Schmidt Science Fellowship to develop artificial retinas. [Read more online.](#)



#### **Farewell Nicci We**

bid a sad goodbye last month to Nicci Coad (RMIT), who is leaving FLEET to join the new ARC Centre of Excellence in Optical Microcombs for Breakthrough Science (COMBS). Thanks Nicci for all your amazing work supporting FLEET members in the last five years!

**Mitko on stage** Congratulations to Mitko Oldfield whose tale of smooshing light and matter together to stop the world burning was the 3MT (Three Minute Thesis) winner for Monash University Faculty of Science round last month; onwards and upwards without resistance.



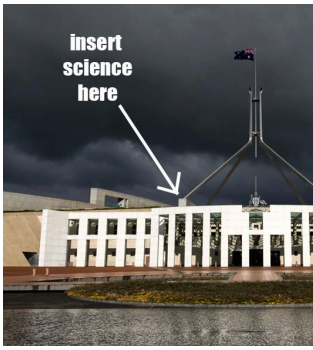
**Schools outreach** *"One student told me she'd not previously considered science as a career, as it all seemed too hard for her, but she was excited now by what she had achieved and learnt during the class."*

An outreach day at Mater Christi College Belgrave took 250 students through FLEET workshops on catapults, graphite circuits and optics, with one student telling FLEET/Monash volunteer Grace Causer the day had inspired her to consider science as a career. [Read more online.](#)



**Energy diplomat visiting labs at UNSW** Alex Hamilton and FLEET's team at UNSW were pleased last month to host Bangladesh Energy Advisor Dr Tawfiq-e-Elahi Chowdhury, who was shown the QED Group's facilities and labs with team members explaining their role in the search for new materials and technologies towards a sustainable future for electronics. [Read more online.](#)





**Resources: influencing science policy** We're sharing resources from Michael Harvey's recent seminar on influencing science policymakers, with three simple ways to provide effective input into government decision-making.

**Slides are on the FLEET website**, and **video on Youtube**.

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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.

