

FLEET News: July 2023

FLEET recently enjoyed our annual workshop in Lorne. It was a great week of science and discussion.

Looking forward, there are many upcoming events of note... The **National Science Quiz** is happening on 27 August – join up to play online or attend the live event in Melbourne.



Also see below for info on our **Meet FLEET** industry-focused event at UNSW on 20 October, the **inSTEM** conference at RMIT focusing on career development for marginalised groups in STEM on 19-21 September, as well as the first International **Conference in Quantum Energy** to be held in Melbourne 4-6 December 2023.

Michael Fuhrer
Director, FLEET

In this edition of FLEET News:

- **FLEET 2023**
- **Nanoplanets in the palm of your hand** (RMIT)
- **Nanomagnet speaking tour**
- **International Conference in Quantum Energy** (Melbourne December)
- **National Science Quiz**
- **Universities report**
- **Jobs board**
- **FLEET ECR authors this month**
- **Survey: science-meets industry challenge**
- **Conferences, past talks and opportunities**

FLEET2023

The FLEET annual workshop this month was a great success.

Thank you again to the volunteers who helped make the week a success: Abhay Gupta, Bianca Fabricante, Daniel McEwan, Enamul Haque, Kyle Boschen, Michael Lord, Mitko Oldfield, Olivier Bleu, Pablo Resendiz Vazquez and Ziyuan Zhao.

See story online.



A nanoplanet in the palm of the hand

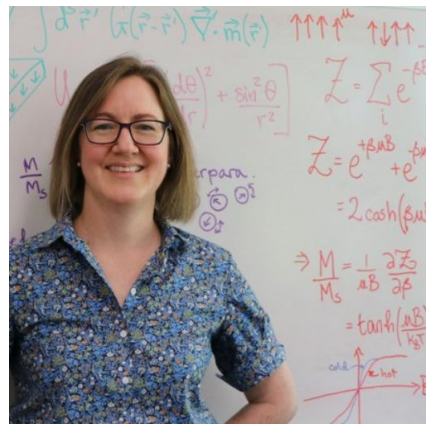
Liquid metal, planet-like nanodroplets are successfully formed with a new technique developed at RMIT. Like our own Planet Earth, the nanodroplets feature an outer 'crust', a liquid metal 'mantle', and a solid 'core', says lead author, PhD candidate Caiden Parker. The discovery creates new research opportunities in fundamental liquid-metal chemistry as well as applications in flexible electronics, catalysts and fuel cells, and silver-based antimicrobials. [Read more online.](#)



See coverage at [Phys.org](#) / [Nanowerk](#) / [Nanotechnology World Assoc](#) / Australian Manufacturing Technology magazine

Nanomagnet physics tour

FLEET AI Karen Livesey (University of Newcastle) is currently touring the country speaking about nanomagnets, as part of the Australian Institute of Physics Women in Physics tour. So far Karen has spoken at Perth (University of WA) and Melbourne (RMIT and Monash), with more speaking dates to come.



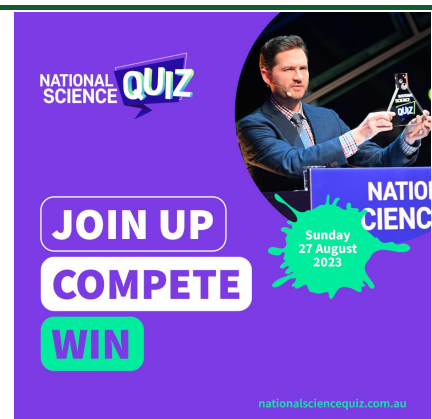
International Conference in Quantum Energy

The first International Conference in Quantum Energy in Melbourne 4-6 December 2023 will examine the role of quantum technologies in future energy challenges and opportunities.

icqe.com.au / abstracts by 31 July / early bird registration by 4 September

National Science Quiz

The **National Science Quiz** is being held again Sunday, 27 August in Melbourne, with FLEET one of an expanded group of 14 different science organisations now running the annual event, ensuring a sustainable future for this sci-comms asset. Volunteers to help out are welcomed (ask Jason) and tickets are now on sale. Gather a team to play. Free online or \$12 tickets to attend the live show at The Capitol Theatre. See the [website](#) for more details and [tickets](#).



Universities report

A recent Australian universities report identifies the challenge of increasingly many jobs requiring an degree, and the lack of equity in uni access for outer-suburbs and regional populations. Recommendations include establishing regional uni hubs, scrapping the 50% pass rule that has had a disproportionately negative impact on students from poor backgrounds and from the regions, and First Nations students funding. [Read the report online.](#)

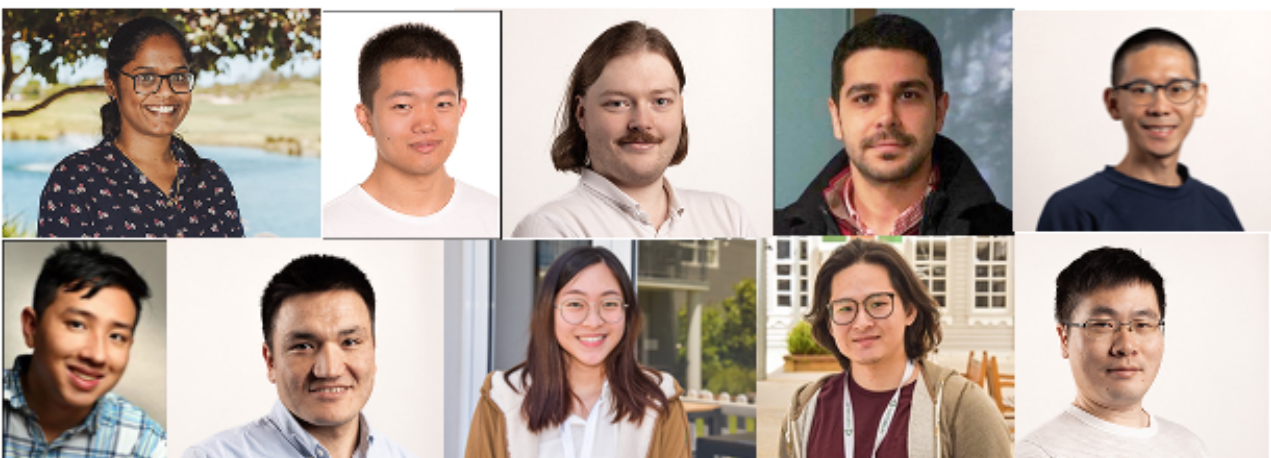


New jobs board

We have recently started a FLEET “jobs board” on the Centre website at [FLEET.org.au/jobs-board](https://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.

FLEET ECRs publishing in July

Congratulations to our early-career researchers who were authors on papers published this month: Caiden Parker, Patjaree Aukarasereenont, Vivasha Govinden, Moein Seyfour, Alexander Nguyen, Abdulhakim Bake, Chang Liu, Yi-Hsun Chen, Dawei Zhang and Yahua He.



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**
- Bob Camley (University of Colorado) **Nonreciprocal reflection and transmission in 100GHz–2THz range**
- Kevin Daniels (Maryland) **The carbon scaffold: Building next-gen materials & devices on quasi-freestanding epitaxial graphene**



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+).

Australian Army Research Centre Research EOIs sought, with topical areas including quantum technologies, quantum sensing, computing and communications. **Deadline 8 Aug.**

Physics in the Pub is an opportunity for Sydney-based FLEETonians to present/perform rapid-fire (8min) physics (eg, comedy, music, quiz, demo).

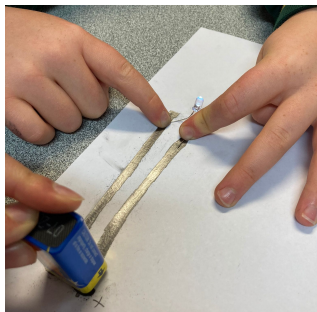
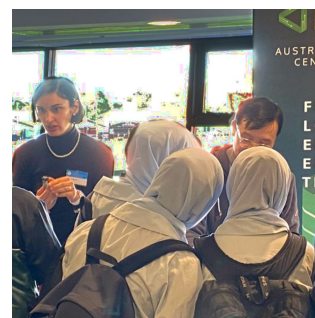
For ongoing outreach/development opportunities see **In2science** mentoring, and **CSIRO STEM Professionals in Schools**.

Previous news

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.**



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 last month engaging future scientists by demonstrating hands-on magnetic and graphene demonstrations, van-der-Graff generator, jumping rings and graphite circuits.



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 month – 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.](#)

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.



