



## FLEET News: August 2021

I hope you are hanging in there. But if you're not, please reach out to someone: a friend, a colleague, your advisor, or your supervisor.

Congratulations to Zhi, Iolanda, Matt, Eli, and Qingdong on their successful fellowships. Unfortunately Iolanda will be leaving us for Madrid and we will miss her.

More exciting science and good news below. It is much better than doom-scrolling, so read the whole thing!

Regards,  
Prof Michael Fuhrer  
Director, FLEET



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### In this edition:

- **Mixing a cocktail of topology and magnetism** (Monash)
- **Home-grown semiconductors for faster, smaller electronics** (UNSW)
- **Zhi Li: a superconducting future fellow** (UOW)
- **Spanish fellowship for Iolanda Di Bernardo** (Monash)
- **Three new DECRAAs at FLEET** (UQ, ANU, Monash)
- **Mitko Oldfield wins Visualize Your Thesis competition** (Monash)
- **FLEET alum spotlight: Paul Atkin**
- **Electrons flowing like honey** (UNSW, NUS)
- **Talks and events coming up / FLEET 2020**
- **Congratulations to our ECR authors**
- **Grants and opportunities**

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## Mixing a cocktail of topology and magnetism

A new review led by Semonti Bhattacharyya at Monash spotlights heterostructures where the interplay of magnetism and topology allows exotic quantum phenomena for future low-energy electronics. [Read more online.](#)



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## Home-grown semiconductors for faster, smaller electronics

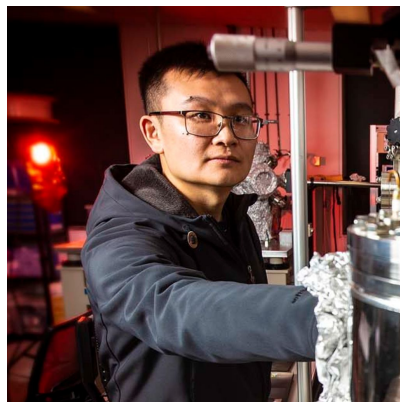
Yoni Ashlea Alava and crew at UNSW have demonstrated that growing electronic components directly onto a semiconductor block avoids messy, noisy oxidation scattering. The resulting high-mobility components are ideal candidates for high-frequency, ultra-small electronic devices, quantum dots, and for qubit applications in quantum computing. [Read more online.](#)



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## Zhi Li: a superconducting future fellow

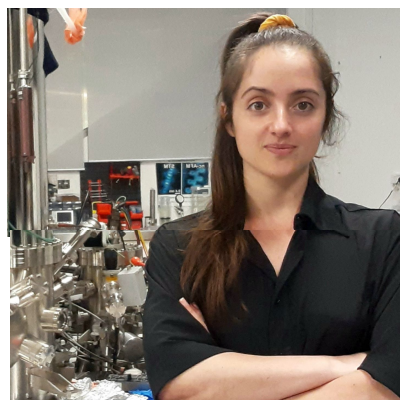
Congratulations to FLEET AI Dr Zhi Li (UOW) who received an ARC Future Fellowship in this month's announcement. The new ARC Fellowship will support Zhi's study of iron-based high-temperature topological superconductors, based at the Institute of Superconducting and Electronic Materials (ISEM) at the University of Wollongong. [Read more online.](#)



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## ¡Felicidades! to Iolanda Di Bernado

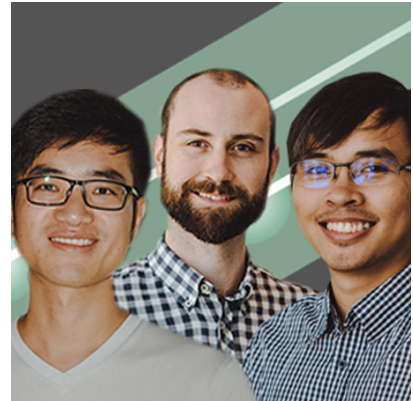
Congratulations to FLEET Research Fellow Dr Iolanda Di Bernardo (Monash), receiving the highly prized Juan de la Cierva fellowship to fund research with Prof Amadeo Vázquez de Parga at Madrid's IMDEA Nanociencia Institute, starting in Spring 2021. [Read more online.](#)



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## Three new DECRAs at FLEET

Three FLEET Research Fellows are amongst those receiving DECRA Fellowships in ARC announcements this month, funding research into superfluid turbulence, EM-controlled polaritons and twisted 2D materials. Congratulations to: Dr Matt Reeves (UQ), Dr Eli Estrecho (ANU) and Dr Qingdong Ou (Monash). [Read about the work being funded online.](#)



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## Congratulations Mitko Oldfield

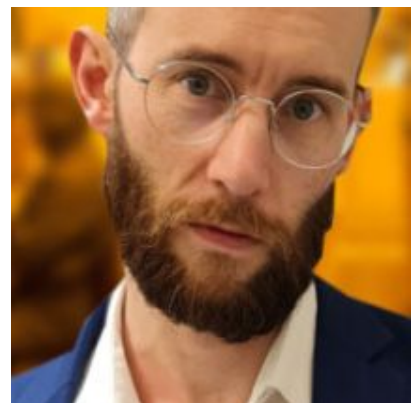
FLEET PhD student, Mitko Oldfield won the Monash University [Visualise Your Thesis 2021 Competition \(VYT\)](#). Mitko will go on to represent Monash at the International VYT Final in October.



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## Where are they now? FLEET alum Paul Atkin

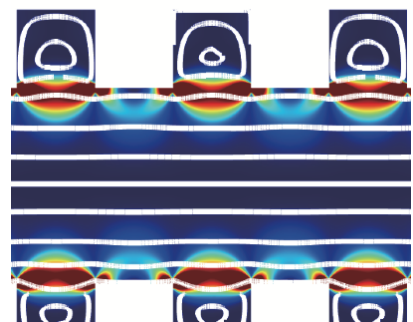
Talk to as many people as possible about your future career, and stay open to new career directions. FLEET alum Dr Paul Atkins (ex 2D material science at RMIT) has found a thoroughly rewarding post-career outside of academia, facilitating others scientific discoveries via providing specialised equipment. [Read more online.](#)



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## Electrons 'flowing like honey'

Electrons can flow like a fluid thicker than honey, with potential for future electronics—contrary to textbook model of a solid as a 'pinball machine', with electrons bouncing around between atoms in the crystal lattice. APS Physics has published a nice article about a new paper from Aydin Keser, Daisy Wang and the team at UNSW Physics, with Shaffique Adam at Yale-NUS College. [Read the article.](#)



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## Talks and events coming up

Don't miss these events, coming up in the next month:

- FLEET seminar - Layered Metal Chalcogenide single crystals for beyond CMOS and quantum applications. Albert Davydov, NIST  
Date/Time: 2 September. 11am – 12pm  
[Zoom registration](#)
- US-Aust colloquium: Elena Ostrovskaya, ANU  
Date/Time: 9 September. 9:00 – 10:00am  
[Zoom registration](#)
- Early Career Women in STEMM Paper & Grant Writing Workshop  
Date & time: 20 September. 9.30am – 22 Sep 2021 4pm  
[More information and registration](#)
- FLEET seminar Francesca Iacopi, UTS. Augmenting silicon technologies with graphene  
Date/Time: 30 September. 11:30am – 12:30pm  
[Zoom registration](#)

**You can catch up** on all the talks from July's strategic workshop via the presentations folder on [the FLEET intranet](#), plus Steve Duvall and Silanna colleagues talking about [commercialising semiconductor research](#).

Or, click below to catch up with these recent public FLEET talks and presentations:

- Prof. Jelena Vockovic (Stanford) [Inverse designed integrated photonics](#)
- Jennifer MacLeod (QUT) [Controlling surface growth of molecular nanoarchitectures](#)
- Tami Pereg-Barnea (McGill) [Domain/skyrmion-bound surface states of magnetic TIs](#)
- Jeanie Lau (Ohio) [Tunable edge states in vdW materials](#)

## EMCR forum

What do early-and mid-career researchers need for their careers to be sustainable? Check out Science Pathways 2021: Sustainable Careers', promising thought-provoking discussions around the future of work (whether in academia, industry, or govt), managing work-life responsibilities, looking after our mental health, and building a more inclusive STEM sector, and more.

In person and/or online, including panel discussions, professional development, and networking. Launches 25-26 November at the University of Melbourne (and online), followed by three online-only events in early-December. [Register online](#).

## IEEE: Rebooting computing and GreenCom

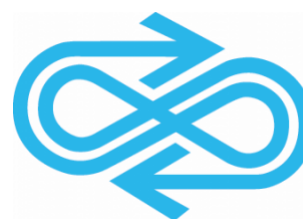
The 6th IEEE International Conference on Rebooting Computing will be held online in Nov/Dec 2021, soliciting original papers on future computing technologies of all types. More info at [ICRC.ieee.org](https://icrc.ieee.org) or see [rebootingcomputing.ieee.org](https://rebootingcomputing.ieee.org) for more information on the IEEE Rebooting Computing Initiative.



The 17th IEEE **International Conference on Green Computing and Communications** will follow soon after, in Melbourne, 6-8 December. Paper submission deadline 5 September.

## Bring your physics to the AIP summer meeting

Abstract submissions are now open for the Australian Institute of Physics Summer Meeting (6–9 December) at QUT in Brisbane. FLEET's Iolanda Di Bernardo (Monash) and Dongchen Qi (QUT) are encouraging all FLEET physicists to consider attending to present their research. [Details online](#).



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## Congratulations to our ECR authors this month

Congratulations to the following FLEET students and ECRs: Matthew Gebert, Jack Muir, Mitch Conway, Oliver Paull, Yonatan Ashlea Alava, Cheng Tan, Daisy Wang, Golrokh Akhgar, Olivier Bleu, Semonti Bhattacharyya, Stuart Earl and Stuart Burns who are the first, second or third author in our **most recent publications**.

