



FLEET News: farewell to 2020

It was great to see almost all our members and many FLEET partners virtually at the Annual Workshop this year, with FLEET using multiple online networking tools to share research talks and more fluid discussions. The technical presentations were truly impressive, with presenters doing an admirable job of making their work accessible to the breadth of the FLEET team. The quantity and quality of FLEET science continues to grow...



In 2020 we had to say farewell to both Dianne and Charlotte from FLEET's business team. FLEET has been lucky to attract great people, and is focused on helping members develop their career skills – but the one downside is that some of our members will leave us to go on to bigger things! Dianne and Charlotte are both moving on to manage ARC Centres of their own.

Wishing all of you a safe and happy holiday season, while we look forward to a better 2021.

Regards,
Michael Fuhrer
FLEET Director

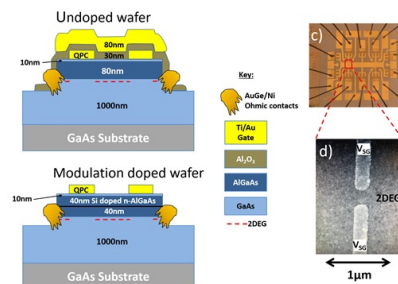
In this edition:

- **More-reproducible quantum electronics** (UNSW)
- **Polariton interactions** (Monash)
- **Ferroelectric patterning** (UNSW)
- **New PI Shaffique Adams** (NUT)
- **Electrical spin filtering** (UNSW)
- **Building leadership skills at WLA**

- ECR authors in December
- Industry engagement
- Changes in FLEET Ops Team
- Twistronics in top ten (Monash)
- ARC Centres' agility and 'leading the way'

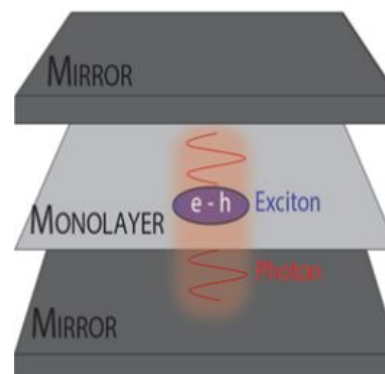
Removing random doping for better quantum devices

UNSW's Ashwin Srinivasan led a collaboration that found removing random doping in quantum electronic devices dramatically improves their reproducibility – a key requirement for future applications such as quantum-information processing and spintronics. [Read more online.](#)



Polariton interactions: light matters

Monash Research Fellow Olivier Bleu led a new study that explains why exciton-polaritons (exotic quasiparticles that are part light / part matter), don't behave as predicted: continuing to interact with other particles when confined to 2D and ultra-cold temperatures. [Read more online](#)



Seeking answers in ferroelectric patterning

Why do some ferroelectric materials display 'bubble'-shaped patterning, while others display complex, labyrinthine patterns? Peggy Qi Zhang and Vivasha Govinden (UNSW) with Youstra Nahas (Arkansas) led this FLEET paper in *Nature Communications*, investigating the changing patterns in ferroelectric thin films. [Read more online](#)



'New' PI Shaffique Adams

FLEET's newest partner investigator is already very familiar to us all: **Shaffique Adam** has made significant contributions to FLEET to date as an Associate Investigator, and we're pleased to strengthen our partnership with the National University of Singapore by adding Shaffique officially as a partner investigator, alongside Antonio Castro Neto and Barbaros Oezylmaz.



Electrical spin-filtering the key at UNSW

A new UNSW study led by Elizabeth Marcellina is a step towards even-faster, more energy-efficient spintronics, applying 'spin-filtering' to separate spin orientation via electrical means—less energetically costly than magnetic. [Read more online](#)



Building leadership skills

Congratulations to Peggy Schoenherr (UNSW), Maria Javaid (RMIT), Chi Xuan Trang (Monash) and Cecilia Bloise (UNSW) who successfully secured scholarships from Women and Leadership Australia and the FLEET equity & diversity committee to participate in the 2021 Leading Edge program. [Read more online](#)



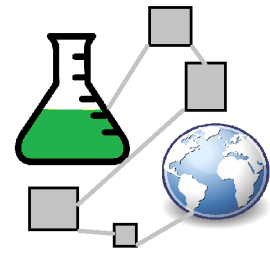
Congratulations to our ECR authors this month

Congratulations to all FLEET's PhD students and other ECRs who are first or second authors in [our recent publications](#): Hien Nguyen, Olivier Bleu, Guangyao Li, Matthias Wurdack, Matt O'Brien, Jesse Vaitkus and Gaurav Vats.



Industry engagement

Developing members' research translation skills Two FLEET teams wrapped up their research-translation training this month in the Ascend program (FLEET participants: Abigail Goff, Yi-Hsun Chen, Matthias Wurdack, Patjaree Aukarasereenont, Jesse Vaitkus, Hareem Khan, Errol Hunt and Tich-Lam Nguyen). **See the teams' final 'pitch' presentations online** (FLEET starts 14:00).



FLEET sponsored the training as part of the Centre's program to equip members with practical tools for maximising research impact, learning how to get research results out into the world—in this case with a very useful 'side benefit' in fine-tuning FLEET-relevant "pitch" material, and introducing the Centre to a wider range of Australian industry and research contacts.

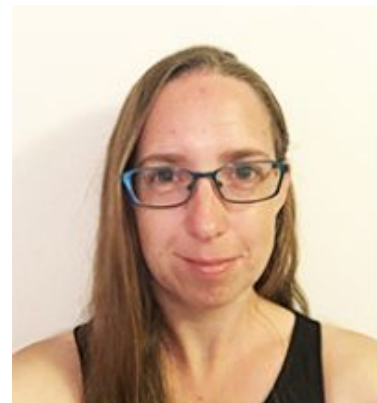
Research-commercialisation talk in March Scientist, educator and entrepreneur Dr Erol Harvey—founder of the world-leading microfluidic engineering company MiniFAB—will present a special FLEET seminar sharing his significant experience in research commercialisation and entrepreneurship. **Sign up online.**



NSW semiconductor study A new report from the NSW Chief Scientist & Engineer's office on NSW participation in the semiconductor industry, published this month, is worth a read to see some of the Australian businesses and research groups active in this space.

Changes in the FLEET Operations Team

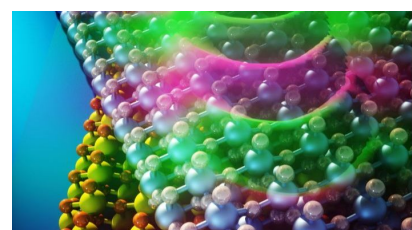
We welcome on board **Jason Major** as FLEET training and outreach coordinator (replacing Diane Ruka), and **Catherine Taylor** (right) as UNSW node administrator (while **Cecilia Bloise** is on maternity leave).



Congratulations to **Charlotte Hurry** who is leaving FLEET in January to start as manager for an ARC industry transformational research training centre. And farewell to **Kathleen Hicks** who has supported the FLEET-ANU crew since 2017. We'll miss them both, but we wish them all the best with their next journeys.

Twistronics in top ten

Qingdong Ou and Qiaoliang Bao's (Monash) work earlier this year on expanding twistronics to photons was selected as a TOP 10 Breakthrough of the Year in Physics World. See the top ten list online



COEs agility and 'leading the way'

A recent study of Australian Research Council Centres of Excellence acknowledges such Centres' relative agility, meaning they can 'lead the way to where [larger, more cumbersome] institutions may follow'. "Making change in an institution as big as a whole university can be glacial. Their identity is fixed. But Centres are potentially agile enough to test ideas that the university may not yet be ready to embrace." One example given is FLEET's own Women in FLEET initiative.

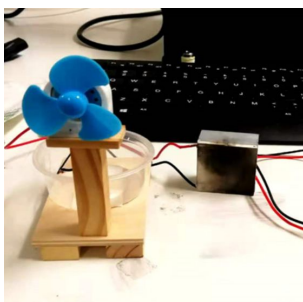
Previous news

Removing random doping for better quantum devices UNSW's Ashwin Srinivasan led a collaboration removing random doping in quantum electronic devices to dramatically improve reproducibility – a key requirement for future applications such as quantum-information processing and spintronics. [Read more online.](#)



Remote outreach wows students A multi-node outreach effort led by UNSW's Cecilia Bloise introduced primary school students to electricity through a hands-on, COVID-safe learning exercise, guided on-screen by FLEET members, using instructions written from FLEET's comprehensive Home Science library. [Read more online.](#)

Adding expertise with new Centre advisors FLEET adds to expertise guiding Centre policy and science, with the latest additions to the FLEET Advisory Committee and International Scientific Advisory Committee. Welcome to new Centre advisors Rebekah Brown (Monash), Esther Levy (Wiley), Francois Peeters (University of Antwerp) and Joanna Batstone (ex IBM). [Meet FLEET's new Advisors online.](#)



Ground-breaking thermoelectrics UOW PhD student Guangsai Yang led a study identifying breakthrough improvements in thermoelectric materials, which convert heat into electricity and vice versa, seeing efficiency improved by over 60%, with potential for new heat-harvesting applications, including powering small personal devices such as wristwatches from the body's own heat. [Read more online](#)

Congratulations Priyank Congratulations Priyank Kumar, who received a Discovery Early Career Researcher Award (DECRA). Priyank's project, receiving one of only 200 awarded in the round, works towards an efficient plasmonic photocatalyst, providing insight into atomic-level reactions steps involved and developing catalyst design principles to guide experiments. [Read more online.](#)



Celebrating diversity FLEET and EQUS members combined last month to mark LGBTSTEM Day with a panel sharing some of the challenges faced, and suggestions of what colleagues can do to support each other. Thanks to FLEET-Monash PhD student Alex Nguyen who volunteered to speak.

Congratulations Matthias Congratulations to ANU's Matthias Wurdack on winning the AIP NSW Postgraduate Award this month for his presentation "Towards future low-energy transistor technologies with exciton-polariton superfluids in atomically-thin semiconductors." [Read more online.](#)



Cathy Foley new Chief Scientist CSIRO Chief Scientist Dr Cathy Foley was named Australia's next Chief Scientist. FLEET is very fortunate to have the benefit of Dr Foley's advice on the Centre's Advisory Committee. [Read more online](#)



Congratulations Kourosh FLEET CI Kourosh Kalantar-zadeh (UNSW) was named in the top 1% by citations in his field for the third year running in the Clarivate Analytics list. The citation identifies influential researchers as determined by their peers around the globe. [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.



Copyright © 2020 FLEET Centre, All rights reserved.

You have been sent this email because we believe FLEET's news will be of interest. If we were wrong, our apologies! Please make use of the unsubscribe button below.

Our mailing address is:

FLEET Centre
c/-School of Physics & Astronomy, Monash University
Clayton, Vic 3800
Australia

[Add us to your address book](#)

Want to change how you receive these emails?

You can [update your preferences](#) or [unsubscribe from this list](#).

