

## FLEET News

This edition of FLEET News focuses on spreading a passion for science

As well as performing great science ourselves, FLEET is committed to increasing the science-literacy of the public, and fostering a passion for science amongst the students who will become Australia's future scientists and engineers.



To this end, we invest great energy in science outreach, including public events such as Nobel Laureate Wolfgang Ketterle's talks (see below), and school shows.

There's also a wrapup of recent research results below. And a note of congratulations to Kourosh Kalantar-Zadeh (RMIT) whose contributions to sensing science have been recognised by the American Chemical Society, and whose work with Torben Daeneke has featured in media this month.

Regards,

**Michael Fuhrer**

Director

ARC Centre of Excellence in Future Low-Energy Electronics Technologies

## FLEET Geeks: encouraging future scientists

FLEET outreach coordinator [Dianne Ruka](#) is developing a school/kindergarten show designed to inspire future scientists to learn more about the unseen forces around them. [FLEET Geeks](#) will be rolled out in 2018.



Ultimately, we will be building a library of outreach options for members to dip into, and we would welcome any input to this library from our research affiliates.

Outreach is a vital part of our mission and all FLEET members contribute to that effort.

## Research and results from around the Centre

FLEET researchers using the UV beamline at the Advanced Light Source (California) have been investigating electronic structure of candidate materials for large-bandgap topological insulators.



A Swinburne University of Technology study has compared methods used to study femtosecond-timescale electronic interactions within complex systems, particularly stability and sensitivity with respect to the semiconductor nanostructures and 2D materials key to success at FLEET.

Graphene-based biosensors offer great potential for rapid, reliable DNA/RNA sensing and sequencing. A recent Monash University study has defined key adsorption interactions and identified specific improvements to current graphene-based biosensing.

A University of Wollongong study tightens the search for spin-gapless semiconductors facilitating ultra-fast, ultra-low energy 'spintronic' electronics with no wasted dissipation of energy from electrical conduction.

[Previous research stories.](#)

## New tool at the synchrotron

A new tool at the Australian Synchrotron will probe electronic structure of materials, including candidate materials for FLEET's research theme 1, topological insulators.



Managed by FLEET Partner Investigator Anton Tadich, the toroidal analyser will allow for measurement of electronic behaviour using ARPES, the same technique used by Anton and FLEET's Mark Edmonds in [recent research on the Advanced Light Source at Berkeley, US.](#)

The tool will allow complementary in-situ growth and characterisation of topological materials via ARPES (electronic properties) and scanning tunneling microscopy (atomic-level structure and localised electronic properties). The Australian Synchrotron is a FLEET Partner Organisation.

## Recognition and media

Congratulations to Kourosh Kalantar-zadeh at RMIT, who was recognised by the American Chemical Society for "expanding the scope of the sensing field", and [recognised as making the biggest impact in measurement science across the Asia-Pacific region in the last five years.](#)

Kourosh and RMIT researcher Torben Daeneke have also [featured in the media](#) this week with coverage of their remarkable advances in deposition of atomically-thin materials. We will cover more on this discovery in the next edition of FLEET news.



## Nobel Laureate Wolfgang Ketterle

In November we are fortunate to be hosting Nobel Physics Laureate Wolfgang Ketterle, who will be presenting a public talk at Swinburne University of Technology on 30 November. We're inviting all our Melbourne industry and research partners to join us, and would appreciate your help in sharing [the event](#) among friends and colleagues.

Secondary school students and teachers will also get the opportunity to meet Prof Ketterle, with FLEET co-sponsoring [Lunch with a Laureate](#) at Monash University (Clayton) at lunchtime Friday 1 December.



## Opportunities

[Academy of Technology and Engineering Clunies Ross Awards](#) recognising entrepreneurship, commercialisation and innovation. Nominations before 27 October

[Japan Society for the Promotion of Science \(JSPS\) Postdoctoral Fellowships](#) for travel, applications due 30 October.

[Australian Nanotechnology Network \(ANN\)](#) funding for members to travel to Australian National Fabrication Facility nodes. Open for postgraduate nanotech students and ECRs currently studying/working in Australia who are members of ANN.

[ARC Future Fellowships Proposals](#) close 22 November

## Helping spread FLEET news

If you're on [Facebook](#), [Twitter](#) or [Linkedin](#), we would love it if you followed our accounts and shared our posts, particularly with other colleagues in the field. If a friend or colleague might be interested in our news, [click here to send them an invite](#). Or let us know and we'll invite them.

If you have been forwarded this email, you can subscribe to future editions by [clicking here](#).

## Participating organisations

FLEET's participating nodes are: the Australian National University, Monash University, RMIT University, Swinburne University of Technology, the University of New South Wales, the University of Queensland and the University of Wollongong.



FLEET is: The Australian Research Council Centre of Excellence in Future Low-Energy Electronics Technologies.