



# FLEET

ARC CENTRE OF EXCELLENCE IN  
FUTURE LOW-ENERGY  
ELECTRONICS TECHNOLOGIES

## FLEET Annual Workshop Program

- Torquay
- 26–29 November 2018

<b>Sunday 26 Nov</b>	<b>Session</b>
Noon onwards	Delegate arrival & workshop registration
From 12.30	Buses arrive
From 12:30	Light Lunch
13:30	Science communication : Build your “why” Structuring your elevator pitch for maximal engagement
15:30	Break
16:00	Science communication: Embody your theme Using the storyteller’s toolbox in science communication
17:00	Science speed dating: Test drive your elevator pitch
17:30	What the FLEET? - Matthew Davis
18:00	Accommodation Check-in, Prepare for Poster presentations
18:30	Welcome Pizza Dinner & Drinks
19:00	1st Poster session, FLEET Geeks science show & networking

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Monday 27 Nov			Chair
9:00–9:05	5	<i>Welcome</i> Michael Fuhrer, Director	MF
9:05–9:45	40	Qi-Kun Xue, Tsinghua University	
9:45–10:45	60	<i>Research theme 1: topological materials</i> —Tutorial Oleg Sushkov, UNSW	
10:45–11:15	30	Coffee Break	
11:15–12:15	60	<i>Research theme 1: topological materials contd.</i> —Project updates <ul style="list-style-type: none"> <li>• <i>Artificial graphene experiment (Si and GaAs)</i> (CI Klochan) Daisy Wang, UNSW</li> <li>• <i>Exploring &amp; predicting new topological electronic materials based on 1st principles calculations</i> (CI Medhekar) Yuefeng Yin , Monash</li> <li>• <i>Development &amp; synthesis of novel vdW materials and heterostructures</i> (CI Lan Wang) Cheng Tan, RMIT</li> <li>• <i>Theory of artificial graphene</i> (CI Sushkov) Harley Scammell, UNSW</li> </ul>	NV
12:15–12:30	15	<i>Fairness &amp; diversity: equity at FLEET</i> , Elena Ostrovskaya, Equity Chair	
12:30–14:00	90	Lunch	
14:00–15:00	60	<i>Research theme 1: topological materials contd.</i> —Project updates <ul style="list-style-type: none"> <li>• <i>Magnetic oxide topological insulators - fabrication and characterisation</i> (CI Valanoor) Jackson Wong</li> <li>• <i>Theory of transport in strongly spin-orbit coupled systems</i> (CI Culcer) Aydin Keser</li> <li>• <i>Dissipation in low-dimensional transport</i> (CI Cole) Samuel Wilkinson</li> <li>• <i>3D to 2D crossover in WTe<sub>2</sub> crystals</i> (CI Hamilton) Feixiang Xiang</li> </ul>	AH
15:00–15:20	20	<i>How we work together: FLEET operational update</i> Tich-Lam Nguyen, COO	
15:20–15:50	30	Coffee Break	
15:50–16:50	60	Breakout sessions - discussions	

Tuesday 28 Nov			Chair
9:00–9:30	30	Shaffique Adam, Yale-NUS	MP
9:30–11:00	90	Research theme 2 exciton superfluids —Tutorial <ul style="list-style-type: none"> <li>• <i>Exciton-polariton condensation and superfluidity</i> Elena Ostrovskaya, ANU</li> <li>• <i>Exciton superfluidity in bilayer systems</i> David Neilson, University of Camerino</li> </ul> —Project updates <ul style="list-style-type: none"> <li>• <i>Exciton-polariton BEC in atomically thin materials</i> (CI Ostrovskaya) Eli Estrecho, ANU</li> <li>• <i>Bistability and non-equilibrium phase transitions in a driven-dissipative superfluid</i> (CI Matt Davis) Matt Reeves, UQ</li> </ul>	
11:00–11:30	30	Coffee Break	
11:30–12:15	45	Enabling Technology B: device nanofabrication —Project updates <ul style="list-style-type: none"> <li>• <i>Waveguide-coupled 2D semiconductors</i> (CI Bao) Qiaoliang Bao, Monash</li> <li>• <i>The growth of large area 2D transition metal oxides and chalcogenides for nanoscale devices</i> (CI Kalantar-Zadeh) Jian Zhen Ou, RMIT</li> <li>• <i>Oxide Heterointerface and Nanolithography by Scanning Probe Microscopy</i> (CI Seidel) Pankar Sharma, UNSW</li> </ul>	LW
12:15–12:45	30	Spreading a passion for science: FLEET Outreach and competition, Chris Vale and Dianne Ruka	
12:45–14:15	90	Lunch	
14:15–14:45	30	Enabling technology A: atomically thin materials —Project updates <ul style="list-style-type: none"> <li>• <i>Thin single crystals of topological insulators, MBE growth of atomically thin Sb</i> (CI Xiaolin Wang) David Cortie and Zhi Li, UOW</li> <li>• <i>Na<sub>3</sub>Bi thin films</i> (CI Fuhrer) Mark Edmonds, Monash</li> </ul>	XW
14:45–15:05	20	Intellectual property, Angeline Bartholomeusz (Monash)	
15:05–15:35	30	Coffee break	
15:35–16:30	55	Breakout sessions - discussions	
16:30–17:30	30	Free time, photos	
17:30–19:30	120	2 <sup>nd</sup> Poster session, drinks and appetisers	
19:30–		Official FLEET dinner, prizes	



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Wednesday 28 Nov			Chair
9:00–9:40	40	Wolfgang Ketterle, MIT	JD
9:40–10:55	75	<i>Research theme 3: light-transformed materials</i> —Tutorial, Kris Helmerson, Monash —Project update <ul style="list-style-type: none"> <li>• 2D ultracold Fermi gases in research theme 3 (CI Vale)</li> </ul> <div style="text-align: right;">Paul Dyke, Swinburne</div>	
10:55–11:25	30	<i>Light-field driven condensed phase physics</i> Martin Schultze, Max Planck Institute of Quantum Optics (MPQ)	
11:25–11:55	30	Coffee Break	
11:55–12:25	30	<i>Attosecond optoelectronic metrology</i> Nick Karpowicz, Max Planck Institute of Quantum Optics (MPQ)	CV
12:25–13:25	60	<i>Research theme 3: transformed materials, contd.</i> —Project updates <ul style="list-style-type: none"> <li>• Towards organic topological materials (RT1), and ultrafast charge dynamics and electronic control in 2D materials (RT3) (CI Schiffrin)</li> <li>• Light induced scattering resonances in quantum matter (CI Parish)</li> <li>• The delta-kicked rotor with spin-orbit coupling (CI Helmerson)</li> <li>• Demonstrate understand &amp; control Floquet topological states in 2D materials (CI Jeff Davis)</li> </ul> <div style="text-align: right;">             Agustin Schiffrin and              Dhaneesh Kumar, Monash              Meera Parish, Monash              Kris Helmerson, Monash              Stuart Earl, Swinburne           </div>	
13:25–13:40	15	<i>Challenges ahead, closing</i> Michael Fuhrer and Tich-Lam Nguyen	
13:40–15:00	80	Lunch	
13:40–15:00	80	FLEET Executive meeting (Retreat Room)	
		<i>Delegates can leave early if necessary</i> <i>Buses at 3, 3.30, van at 4.30</i>	