Research Fellow in Excitons and Excitons-Polaritons in 2D Heterostructures (ARC CoE FLEET)

Department/Unit	School of Physics and Astronomy, ARC CoE in Future Low-Energy Electronics Technologies (FLEET)
Faculty/Division	Faculty of Science
Classification	Level B
Work location	Clayton campus
Date document created or updated	November 2017

Organisational context

Monash is a university of transformation, progress and optimism. Our people are our most valued asset, with our academics among the best in the world and our professional staff revolutionising the way we operate as an organisation. For more information about our University and our exciting future, please visit www.monash.edu.

The Faculty of Science works through frontiers via our research, teaching and our partnerships with industry, government and individual supporters. Our five Schools offer a large and diverse range of disciplines in undergraduate and postgraduate courses. Ten Schools from other university faculties contribute to science teaching at all levels, allowing students to choose their studies from physical, biological, biomedical, behavioural, environmental, mathematical and computer sciences. In terms of research, our respected researchers are at the top of their game. Their work spans the theoretical to the applied, contributes to new knowledge and technologies, and challenges how we interact with the world. For more information about our Faculty, please visit www.monash.edu/science.

The School of Physics and Astronomy is a School located within the Faculty of Science. It aims to position itself as one of the top physics and astronomy research and teaching departments in Australia. The School is committed to teaching and research of the highest quality in astronomy, astrophysics, experimental physics, and theoretical physics. We are strongly committed to improving the diversity of our staff and students, and promoting a culture of equality, fairness, respect and openness. In 2015, the School received a Bronze Pleiades Award - Recognising Commitment to Advancing Women in Astronomy. This is an important first step in affirming women within the School, one that we can build upon. For more information about our School, please visit: www.physics.monash.edu.

The ARC CoE in Future Low-Energy Electronics Technologies (FLEET) is an international innovator in novel electronics technologies. Enabled by the new science of atomically thin materials, FLEET brings together over 40 world-leading experts to develop a new generation of ultra-low power devices. The team is highly interdisciplinary with high-profile researchers from atomic physics, condensed matter physics, materials science, electronics, nanofabrication and atomically thin materials. With over $40M investment from the ARC and contributing organisations, FLEET is poised to make significant global impact in the electronics and energy sectors. By building strategic and strong partnerships with Australian and international industry, research institutions and government, FLEET aims to build capacity for advanced electronics research in Australia and train the workforce for the next generation of electronic materials researchers and future semiconductor industry. To learn more about FLEET, please visit our website: www.fleet.org.au.

At FLEET, we are committed to gender equity. Our goal is to achieve at least 30% women researchers and higher degree by research (HDR) students across FLEET. Please visit www.fleet.org.au/equity to learn more. We are also passionate about building future leaders in the field. All of our early career researchers and HDR students will take part in a comprehensive training program incorporating excellent supervision and professional development. To learn more about benefits of working with us, please visit www.fleet.org.au/collaborate.

Position purpose

The Research Fellow will fabricate and characterize novel atomically thin semiconductor heterostructures for the observation of exciton and exciton-polariton condensation. This Level B Academic position will be supervised by professors at Monash University, ANU and UNSW

The Research Fellow is expected to publish papers in high-impact journals, present results at major conferences and workshops, and to assist in the supervision of PhD and honours students in the Centre.

FLEET is invested in increasing the representation of women in the physics and materials science fields. Applications from female candidates are highly encouraged.

Reporting line: The position reports to the relevant Professor in the School

Supervisory responsibilities: Not applicable

Financial delegation and/or budget responsibilities: Not applicable

Key responsibilities

Specific duties required of a Level B research-only academic will include:

1. Establishing a programme of high-quality research into the properties of excitons and excitons-polaritons in atomically thin materials
2. Publishing research outcomes in high impact physics journals and present results internally within collaboration team and to external audiences at international conferences
3. Managing a multi-disciplinary project involving investigators at three universities to a successful outcome
4. Fostering research collaboration and opportunities and develop relationships with other research groups in the field
5. Guiding in the research effort of junior members of research-only Academic staff in her/his research area and contribution to the preparation or, where appropriate, individual preparation of research proposal submissions to external funding bodies
6. Contributing at least 20 hours per year towards outreach activities and actively participate in FLEET research, mentoring and professional development programs
7. Co-supervision or, where appropriate, supervision of major honours or postgraduate research projects within the field of the staff member's area of research
8. Attendance at FLEET workshops, seminars and meetings associated with research or the work of the organisational unit to which the research is connected, as well as relevant departmental, school faculty and committee membership meetings
9. Limited administrative functions primarily connected with the area of research of the academic (e.g., the preparation of competitive grants)
10. Providing input to the strategic planning of the School’s initiatives in condensed matter physics

Key selection criteria

Education / Qualifications

1. The incumbent should possess a PhD in experimental condensed matter physics, materials science, or a closely related field from a recognised university. In addition, she/he may be expected to have had post-doctoral research experience which has resulted in publications, conference papers, or reports, which give evidence of research ability.

Knowledge and Skills

2. A strong background and expertise in van der Waals heterostructures of atomically thin materials, nanofabrication techniques, and electrical and/or optical measurements
3. Research achievements in physics, materials science, or related field, including a record of scientific creativity, publications and citations in high impact physics journals
4. Demonstrated ability to solve problems through innovative solutions
5. Excellent written communication and verbal communication skills with proven ability to effectively analyse information, communicate the aims and outputs of research projects in a range of formats including formal and informal oral presentations, refereed research papers and reports
6. A demonstrated ability to work independently in a research environment (with limited supervision) and as part of an inter-disciplinary research team
7. A demonstrated ability to successfully supervise postgraduate research students
8. Potential to attract external research funding
9. Potential to develop a public profile as a leader in his/her field of physics

Other job-related information

- Travel (e.g. to attend conferences and workshops relating to the fellow's research, visit FLEET collaborating and partner organisations and other campuses of the University) may be required
- Peak periods of work during which the taking of leave may be restricted

Legal compliance

Ensure you are aware of and adhere to legislation and University policy relevant to the duties undertaken, including: Equal Employment Opportunity, supporting equity and fairness; Occupational Health and Safety, supporting a safe workplace; Conflict of Interest (including Conflict of Interest in Research); Paid Outside Work; Privacy; Research Conduct; and Staff/Student Relationships.