
# RESEARCH FELLOW - COMPUTATIONAL MARTERIALS PHYSICS/CONDENSED MATTER PHYSICS (ARC COE FLEET)

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| **DEPARTMENT/UNIT** | Department of Materials Science and Engineering, ARC Centre of Excellence in Future Low-Energy Electronics Technologies |
| **FACULTY/DIVISION** | Faculty of Engineering |
| **CLASSIFICATION** | Level A |
| **WORK LOCATION** | Clayton campus |

## 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 monash.edu.

**Faculty of Engineering** is one of the largest in Australia, renowned worldwide for the quality and calibre of our teaching, research and graduates. We offer a comprehensive range of undergraduate, graduate, postgraduate and higher degree by research programs in a wide range of engineering disciplines. Our research activities provide a platform for establishing a thriving educational enterprise and our staff are committed to creating a dynamic learning environment. The research activities range from fundamental studies to research with a strong applications orientation. To learn more about the Faculty of Engineering, please visit our website: eng.monash.edu.au.

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: 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 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 fleet.org.au/collaborate.

## POSITION PURPOSE

A Level A research-only academic is expected to contribute towards the research effort of the University and to develop research expertise through the pursuit of defined projects relevant to the particular field of research.

The Research Fellow will conduct research in modelling the electronic properties of atomically thin topological insulator materials. This research is expected to involve first principles density functional theory simulations, which will be carried out on the high-performance computing facilities, as well as theoretical/analytical modelling of the electronic transport. The Research Fellow is expected to develop and maintain close connections with experimental groups working in atomically thin materials.

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.

**Reporting Line:** The position reports to Associate Professor for Department of Materials Science and Engineering

**Supervisory responsibilities:** Not applicable

**Financial Delegation:** Not applicable

**Budget Responsibilities:** Not applicable

## KEY RESPONSIBILITIES

A Level A research only academic shall work with support, guidance and/or direction from staff classified at Level B and above and with an increasing degree of autonomy as the research academic gains in skill and experience.

Specific duties required of a Level A research-only academic may include:

1. Conduct research under limited supervision either as a member of a team or, where appropriate, independently and the production or contribution to the production of conference and seminar papers and publications from that research
2. Involvement in professional activities including, subject to availability of funds, including attendance at conferences and seminars in the field of expertise
3. Contribute at least 20 hours per year towards outreach activities
4. Actively participate in FLEET research, mentoring and professional development programs
5. Attend FLEET workshops, seminars and meetings associated with research or the work of the organisational unit to which the research is connected and/or at departmental, school and/or faculty meetings and/or membership of a limited number of committees
6. Provide advice within the field of the staff member's research to postgraduate students
7. Limited administrative functions primarily connected with the area of research of the academic (e.g., the preparation of competitive grants)
8. Co-supervision of major honours or postgraduate research projects within the field of the staff member's area of research
9. Occasional contributions to supervision/teaching in relation to her/his research project(s).

## KEY SELECTION CRITERIA

**Education/Qualifications**

**1.** The appointee will have:

- A PhD in Condensed Matter Physics, Materials Physics or related fields in Physics, Materials Science, or Electrical & Electronics Engineering
- an equivalent combination of relevant experience and/or education/training

**Knowledge and Skills**

**2.** Demonstrated skills and expertise in atomistic simulation methods for the electronic structure and transport (first principles density functional theory methods, particularly applied to 2D electronic materials)

**3.** A strong background in theoretical/analytical condensed matter physics, in particular in the electronic structure and transport

**4.** A demonstrated track record of high impact, refereed research publications in condensed matter physics, materials science or related fields

**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.** The ability to work independently in a research environment (with limited supervision) and as part of an inter-disciplinary research team

**7.** Demonstrated ability to solve problems through innovative solutions

**8.** High level organisational skills, with demonstrated capacity to establish and achieve goals

**9.** Potential to successfully supervise postgraduate research students

**10.** Potential to attract external research funding

**11.** Ability to attend and contribute at group meetings, seminars and journal club meetings as required

## 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;
- There may be 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.