MONASH University

Position description

Research Fellow

Department/Unit	School of Physics and Astronomy, ARC CoE in Future Low-Energy Electronics Technologies (FLEET)
Faculty/Division	Faculty of Science
Classification	Level A
Work location	Clayton campus
Date document created or updated	26 February 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 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 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. In the past five years the School has gone through an exciting period of renewal – investing significantly in people and facilities. The School is committed to teaching and research of the highest quality in astronomy, astrophysics, experimental physics, and theoretical physics. We are recognised internationally for research in a number of fields of physics and astrophysics; however, we are focused on significantly strengthening our research base to achieve the status of a top ranked international department. The School has research strengths in astronomy and astrophysics, ultracold atomic gases, X-ray optics and biomedical imaging, gravitational wave physics, electron microscopy and diffraction, condensed matter physics and high energy particle physics. Currently the School is actively involved in six research centres:

- The ARC Centre of Excellence in Future Low-Energy Electronics Technologies (FLEET – fleet.org.au)
- The ARC Centre of Excellence for Gravitational Wave Discovery (OZGRAV – ozgrav.org)
- The ARC Centre of Excellence for Particle Physics at the Terascale (CoEPP – coepp.org.au)
- The Monash Centre for Astrophysics (MoCA – monash.edu/moca)
- The Monash Centre for Electron Microscopy (MCEM – mcem.monash.edu.au)
- The Monash Centre for Atomically Thin Materials (MCATM – monash.edu/mcatm)

For more information about our School, please visit: 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. Headquartered at Monash University, the FLEET network will comprise 19 chief investigators at seven Australian institutions, 19 partner investigators at 16 institutions worldwide, and over 100 HDR students and

postdoctoral fellows. 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/engage 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 her/his research expertise through the pursuit of defined projects relevant to the particular field of research. The Research Fellow will conduct research in theoretical condensed matter physics, studying model systems in ultracold atomic gases that target different aspects of non-equilibrium phenomena. This will involve theoretical investigations of few-body and/or many-body quantum systems in low dimensions. 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 a Senior Academic within the School of Physics and Astronomy

Supervisory responsibilities: Not applicable

Financial delegation and/or 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, as well as relevant departmental, school faculty and committee membership meetings
6. Provide advice within the field of the staff member's research to postgraduate students.

Key selection criteria

Education/Qualifications

1. The incumbent should possess a PhD in Condensed Matter Physics, or related fields in Physics

Knowledge and Skills

2. A strong background and expertise in theoretical physics, particularly quantum physics
3. Excellent written 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 and refereed research papers and reports
4. Exceptional planning and organisational skills, with the ability to set and meet deadlines
5. Demonstrated ability to work both independently and as part of a team

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.