

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 B
Work location	Clayton
Date document created or updated	15 March 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 B research-only academic is expected to carry out independent and/or team research within the field in which he/she is appointed and to carry out activities to develop her/his research expertise 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.

Reporting line: The position reports to an Associate Professor within 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. The conduct of research either as a member of a team or independently and the production of conference and seminar papers and publications from that research
2. Guidance in the research effort of junior members of research-only Academic staff in her/his research area
3. Contribution to the preparation or, where appropriate, individual preparation of research proposal submissions to external funding bodies
4. Involvement in professional activities including, subject to availability of funds, attendance at conferences and seminars in the field of expertise
5. Contribute at least 20 hours per year towards outreach activities
6. 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. 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

Key selection criteria

Education/Qualifications

1. The incumbent will possess a PhD in Condensed Matter Physics, or related fields in Physics. In addition he/she 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 theoretical physics, particularly quantum physics
3. A solid track record of refereed research publications

4. High level organisational skills, with demonstrated capacity to establish and achieve goals
5. Excellent written and oral communication skills
6. Ability to work both independently and as part of a team
7. Able 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
- 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.