



# RESEARCH FELLOW IN THEORETICAL CONDENSED MATTER PHYSICS

**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

## ORGANISATIONAL CONTEXT

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Everyone needs a platform to launch a satisfying career. At Monash, we give you the space and support to take your career in all kinds of exciting new directions. You'll have access to quality research, infrastructure and learning facilities, opportunities to collaborate internationally, as well as the grants you'll need to publish your work. We're a university full of energetic and enthusiastic minds, driven to challenge what's expected, expand what we know, and learn from other inspiring, empowering thinkers. Discover more at [www.monash.edu](http://www.monash.edu).

The **Faculty of Science** works at the frontiers of research and scholarship, and is committed to high quality teaching and learning; we have numerous partnerships with research institutions, 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 Monash faculties contribute to science teaching at all levels, allowing students to choose their studies from physical, biological, biomedical, behavioural, environmental, mathematical and computer sciences. Our researchers are at the forefront of their fields - conducting research that spans the theoretical to the applied, contributing to new knowledge and technologies, and challenging how we understand and interact with the world.

To learn more about the Faculty of Science, please visit our website: [www.monash.edu/science/](http://www.monash.edu/science/).

The **School of Physics and Astronomy** 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 of Physics and Astronomy is committed to teaching and research of the highest quality in astronomy, astrophysics, experimental physics, and theoretical physics. It aims to produce graduates with a solid foundation in physics and astrophysics. We are recognised internationally for research in several 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.

For more information about our School, please visit: [www.monash.edu/science/schools/physics](http://www.monash.edu/science/schools/physics)

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/](http://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/](http://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/](http://www.fleet.org.au/collaborate/).

## POSITION PURPOSE

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The Research Fellow will conduct research in theoretical condensed matter physics. The key research areas are physics of excitons and exciton-polaritons, ultracold atomic gases and correlations and transport phenomena in double layer systems. There will be a particular focus on understanding and probing correlations both in and out of equilibrium.

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.

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

**Reporting Line:** The position reports to Associate Professor Meera Parish and Dr Dmitry Efimkin

**Supervisory Responsibilities:** Not applicable

**Financial Delegation:** Not applicable

**Budget Responsibilities:** Not applicable

## KEY RESPONSIBILITIES

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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 and actively participate in FLEET research, mentoring and professional development programs
4. 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
5. Provide advice within the field of the staff member's research to postgraduate students

6. Limited administrative functions primarily connected with the area of research of the academic (e.g., the preparation of competitive grants)

## **KEY SELECTION CRITERIA**

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### **Education/Qualifications**

1. The appointee will have:
  - A doctoral qualification in theoretical condensed matter physics or a closely related field from a recognised university or equivalent qualifications or research experience

### **Knowledge and Skills**

2. A strong background and expertise in theoretical physics, particularly quantum physics
3. Demonstrated statistical analysis and manuscript and research proposal preparation skills; including a solid track record of refereed research publications
4. Experience in successfully supervising, mentoring and coaching to support the development of research staff and/or a demonstrated trajectory of leadership capability
5. Experience in supervising and working with major honours or postgraduate students within the discipline
6. The ability to work both independently in a research environment and as part of an inter-disciplinary research team
7. High level organisational skills, with demonstrated capacity to establish and achieve goals
8. Excellent written and oral communication skills
9. Demonstrated capability in positively contributing to laboratory meetings, seminars and journal club meetings
10. A demonstrated capacity to work in a collegiate manner with other staff in the workplace
11. Advanced computer skills with experience using Microsoft Word, Excel and PowerPoint; specific experience in working with a range of analytical software {not applicable for all positions}

## **OTHER JOB RELATED INFORMATION**

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- 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 a requirement to work additional hours from time to time
- There may be peak periods of work during which taking of leave may be restricted
- A current satisfactory Working With Children Check is required

## **LEGAL COMPLIANCE**

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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.