



Position description

Research Fellow Condensed Matter and Quantum Physics

Department/Unit	School of Physics and Astronomy
Faculty/Division	Faculty of Science
Classification	Level A
Work location	Clayton campus
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 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. To learn more about the Faculty of Science, please visit our website: www.monash.edu/science/

The **School of Physics and Astronomy** has very active theoretical, computational, and experimental physics programmes. Current areas of research include: condensed matter physics, ultracold atomic gases, atom, electron and x-ray optics, particle physics, and astrophysics & cosmology. The School has access to the university's cluster and grid computing facilities, and as a member of VPAC/APAC we have access to major supercomputing facilities. Currently the School has 27 academic staff, 25 research-only staff and 17 adjunct staff, supported by 10 professional staff. In the 2015 national audit of research excellence (ERA), the School achieved the maximum overall rating of 5 for Physical Sciences, including the maximum rating of 5 in each of our assessed fields of research (spanning astronomy and astrophysics, atomic and molecular physics, nuclear physics, particle physics, condensed matter physics and optics).

The School provides a vibrant environment for research in **Condensed Matter and Quantum Physics**, and it is committed to further increasing the number of researchers in this area. The appointee will have the opportunity to interact with theorists and specialists in this space as well as world-leading experimentalists and ARC Laureate Fellows. High-quality experimental science is a high priority in the School's Strategic Plan, and the School's research laboratories were recently moved to a \$175M building - the New Horizons Centre. Condensed matter physics in the School is set to expand further over the coming years, as the university will host the new ARC Centre of Excellence in Future Low Energy Electronics Technologies (FLEET).

Further information about the position and the School of Physics and Astronomy is available at: <http://www.physics.monash.edu.au/>

Position purpose

The Research Fellow will conduct research in condensed matter and quantum physics, studying model systems in ultracold atomic gases that target different aspects of strongly correlated 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 to assist in the supervision of PhD and Honours students in the School of Physics and Astronomy.

Reporting Line: The position reports to the relevant specialist academic

Supervisory responsibilities: Not approved

Financial delegation and/or budget responsibilities: Not applicable

Key responsibilities

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

1. The conduct of research in condensed matter and quantum physics under limited supervision either as a member of a team or, where appropriate, independently
2. The production or contribution to the production of conference and seminar papers and publications from that research
3. Involvement in professional activities including, subject to availability of funds, attendance at conferences and seminars in the field of expertise
4. Limited administrative functions primarily connected with the area of research of the academic
5. Development of a limited amount of research-related material for teaching or other purposes with appropriate guidance from other staff
6. Occasional contributions to teaching in relation to her/his research project(s)
7. Attendance at 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; and advice within the field of the staff member's research to postgraduate students

Key selection criteria

Education/Qualifications

The appointee will possess

1. a PhD in Physics or Theoretical Physics from a recognised university

Knowledge and Skills

2. A strong background and expertise in theoretical physics, particularly quantum physics
3. A demonstrable record of publications in high-impact physics or mathematical physics journals
4. Excellent oral, written, and presentation skills
5. Planning and organisational skills, with the ability to set and meet deadlines

Other job-related information

- Travel, both domestic and international, may be required
- Shift work, overtime and out of hours work (including evenings, weekends and public holidays) 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.