POSITION DESCRIPTION

Position Title: Postdoctoral Research Fellow
Organisation Unit: School of Mathematics and Physics
Position Number: TBA
Type of Employment: Full-time, fixed term for 3 years
Classification: Research Academic Level A

THE UNIVERSITY OF QUEENSLAND

The University of Queensland (UQ) contributes positively to society by engaging in the creation, preservation, transfer and application of knowledge. UQ helps shape the future by bringing together and developing leaders in their fields to inspire the next generation and to advance ideas that benefit the world. UQ strives for the personal and professional success of its students, staff and alumni. For more than a century, we have educated and worked with outstanding people to deliver knowledge leadership for a better world.

UQ ranks in the world’s top universities, as measured by several key independent ranking, including the CWTS Leiden Ranking (32), the Performance Ranking of Scientific Papers for World Universities (43), the US News Best Global Universities Rankings (42), QS World University Rankings (48), Academic Ranking of World Universities (55), and the Times Higher Education World University Rankings (69). Excluding the award component, UQ is now ranked 45th in the world in the ARWU, and is one of the only two Australian universities to be included in the global top 50.

UQ has an outstanding reputation for the quality of its teachers, its educational programs and employment outcomes for its students. Our students remain at the heart of what we do. The UQ experience – the UQ Advantage – is distinguished by a research enriched curriculum, international collaborations, industry engagement and opportunities that nurture and develop future leaders. UQ has a strong focus on teaching excellence, winning more national teaching excellence awards than any other in the country and attracting the majority of Queensland’s highest academic achievers, as well as top interstate and overseas students.

UQ is one of Australia’s Group of Eight, a charter member of edX and a founding member of Universitas 21, an international consortium of leading research-intensive universities.

Our 52,000-plus strong student community includes more than 16,400 postgraduate scholars and more than 15,400 international students from 135 countries, adding to its proud 250,000-plus alumni. The University has more than 6,600 academic and professional staff (full-time equivalent) and a $1.75 billion annual operating budget. Its major campuses are at St Lucia, Gatton and Herston, in addition to teaching and research sites around Queensland and Brisbane city. The University has six Faculties and four University-level Institutes. The Institutes, funded by government and industry grants, philanthropy and commercialisation activities, have built scale and focus in research areas in neuroscience, biomolecular and
biomedical sciences, sustainable minerals, bioengineering and nanotechnology, as well as social science research.

UQ has an outstanding track-record in commercialisation of our innovation with major technologies employed across the globe and integral to gross product sales of $11billion+ (see http://uniquest.com.au/our-track-record).

UQ has a rapidly growing record of attracting philanthropic support for its activities and this will be a strategic focus going forward.

**Organisational Environment**

UQ Physics is part of the School of Mathematics and Physics in the Faculty of Science at the University of Queensland. In the recent Excellence in Research for Australia 2018 assessment, the University of Queensland was rated “well-above world standard” in Physical Sciences and Quantum Physics.

Details of the research interests of academic staff may be accessed on the school’s web site at [http://www.smp.uq.edu.au/](http://www.smp.uq.edu.au/)

The University of Queensland and the School of Mathematics and Physics is proud to support a major research effort in quantum physics. It leads the ARC Centre of Excellence (CoE) for Engineered Quantum Systems (led by Prof. Andrew White) and hosts nodes of the ARC CoE for Future Low-Energy Electronics Technologies and ARC CoE for Quantum Computing and Communication Technology.

UQ has an extensive research program in both experiment and theory of ultracold quantum gases. The experimental team is led by Prof. Halina Rubinsztein-Dunlop, Dr Tyler Neely, and Dr Mark Baker. The theory group includes Prof. Matthew Davis, Prof. Karen Kheruntsyan, Dr Ian McCulloch, Dr Joel Corney, and Dr Michael Bromley. The group has broad research expertise in superfluidity and vortex dynamics, optical micromanipulation, computational nonequilibrium and quantum dynamics, and quantum thermodynamics.

The position is based at the St. Lucia campus of The University of Queensland, one of the most spacious and attractive university campuses in Australia. The campus is centrally located near major public transport routes.

**Information for Prospective Staff**

Information about life at UQ including staff benefits, relocation and UQ campuses is available at - [http://www.uq.edu.au/current-staff/working-at-uq](http://www.uq.edu.au/current-staff/working-at-uq)

The University of Queensland [Enterprise Agreement](http://www.uq.edu.au/enterprise-agreement) outlines the position classification standards for Levels A to E.

**DUTY STATEMENT**

**Primary Purpose of Position**

The research fellow will perform experimental research on the generation and manipulation of polar core vortices in spinor Bose-Einstein condensates within the
UQ experimental quantum gas research program. The position is funded by a newly awarded Australian Research Council Discovery project, and will work with a spin-1 rubidium Bose-Einstein condensate in a homogenous quasi-two-dimensional trapping potential implemented by a digital micromirror device (DMD). It is desirable that the successful candidate will collaborate closely with the UQ theory team developing new proposals and an understanding of experimental observations.

Duties

Duties and responsibilities include, but are not limited to:

Research

• Develop a coherent research program by conducting research and publishing scholarly papers.
• Work with colleagues and postgraduates in the development of joint research projects.
• Participate in applications for external research funding.
• Prepare research publications and progress reports and participate in regular meetings to discuss project objectives, methodology and outcomes.

Teaching and Learning

• Contribute to supervision of Honour student and Higher Degree by Research students (as appropriate).

Service and Engagement

• Begin to develop external relationships with industry, government departments, professional bodies and the wider community.
• Perform a range of administrative functions.
• Contribute to activities that benefit the organisational unit, including participation in decision-making and serving on internal committees.
• Any other duties as reasonably directed by your supervisor.

Other

Ensure you are aware of and comply with legislation and University policy relevant to the duties undertaken, including but not exclusive to:

• the University's Code of Conduct
• requirements of the Queensland occupational health and safety (OH&S) legislation and related OH&S responsibilities and procedures developed by the University or Institute/School
• the adoption of sustainable practices in all work activities and compliance with associated legislation and related University sustainability responsibilities and procedures
• requirements of the Education Services for Overseas Students Act 2000, the National Code 2007 and associated legislation, and related responsibilities and procedures developed by the University

Organisational Relationships

The position reports to Prof. Matthew Davis, School of Mathematics and Physics.
SELECTION CRITERIA

- PhD (or progress towards a PhD) in quantum physics.
- Demonstrated ability to conduct meaningful research in experimental quantum physics.
- Track record of publication of research findings in peer reviewed journals and conferences.
- An ability to commence establishing effective relationships to represent and promote the research area at a university and wider community level, including industry, government and professional bodies.
- Demonstrated high-level communication and interpersonal skills including the ability to consult and negotiate with other stakeholders to ensure project objectives are met.

Qualification Verification

An appointment to this position is subject to the verification of the highest academic qualification from the conferring institution.

The University of Queensland values diversity and inclusion and actively encourages applications from those who bring diversity to the University. Please refer to the University’s Diversity and Inclusion webpage for further information and points of contact if you require additional support.

This role is a full-time position; however flexible working arrangements may be negotiated.

Accessibility requirements and/or adjustments can be directed to recruitment@uq.edu.au.