POSITION DESCRIPTION

Position Title: Postdoctoral Research Fellow
Organisation Unit: Australian Research Council (ARC) Centre of Excellence for Engineered Quantum Systems (EQUS)
Position Number: TBA
Type of Employment: Fulltime. Fixed-term up to 2.5 years
Classification: 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

The Australian Research Council Centre of Excellence for Engineered Quantum Systems (EQUS) builds on seven years of previous funding through the Australian Research Council Centre of Excellence scheme. From 2011-2017, our first centre carved out a niche amongst the world’s top players. That position will allow us to compete in the next phase of research and technological transformation as quantum machines and systems begin to emerge.

EQUS will build sophisticated quantum machines to harness the quantum world for practical applications. Our Centre will pioneer the designer quantum materials, quantum engines, and quantum imaging systems at the heart of these machines. We will solve the most challenging research problems at the interface of basic quantum physics and engineering, and work with partners in industry to translate these research discoveries into practical applications and devices. Our capability building programs will train a new generation of scientists in cutting-edge fundamental research, innovation, and entrepreneurialism, and ultimately have a major impact on Australia’s high-tech economy.

More information about EQUS can be found at www.equs.org.

The School of Mathematics and Physics is a School within the Faculty of Science at the University of Queensland. Details of the research interests of academic staff may be accessed on the school’s web site at http://www.smp.uq.edu.au/. Information about the Faculty and the School may be accessed on the Faculty’s web site at http://www.uq.edu.au/faculty-school.

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

The University of Queensland Enterprise Agreement outlines the position classification standards for Levels A to E.

DUTY STATEMENT

Primary Purpose of Position

The ARC Centre of Excellence in Engineered Quantum Systems (EQUS) has been funded for 7 years, for the period 2018-2024. This position will work within the Superconducting
Quantum Devices Laboratory with Associate Professor Arkady Fedorov and his research group.

The Superconducting Quantum Devices Laboratory aims at establishing fabrication and measurement techniques for the next generation of superconducting nanodevices consisting of superconducting qubits or artificial atoms, microwave transmission lines and high-quality superconducting resonators.

The primary purpose of this position is to conduct experimental research relevant to the research goals of EQUS and the Superconducting Quantum Devices Laboratory. This includes work on quantum hybrid systems with superconducting circuits and circuit QED architecture for quantum control and measurement.

Duties

Duties and responsibilities include, but are not limited to:

Research
• Actively contribute to an internationally recognized research program in superconducting circuits.
• Communicate research outcomes, in the form of oral and written presentations, at meetings, in reports, conferences, and in peer-reviewed publications.
• Participate in the supervision of postgraduate and undergraduate students.
• Apply for external and internal funding when the opportunity becomes available.
• Participate in the activities of the ARC Centre of Excellence for Engineered Quantum Systems.

Service and Engagement
• Contribute to committee work and perform other administrative and service roles 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 Associate Professor Arkady Fedorov.
SELECTION CRITERIA

- Possess (or be in the process of obtaining) a PhD or equivalent in experimental quantum physics.
- Demonstrated ability to carry out research in the field of solid-state quantum physics including strong knowledge of theoretical concepts of quantum mechanics.
- Track record of publication of research findings in peer reviewed journals and conferences.
- Have experience in cryogenics, microwave and digital electronics, Python programming and nanofabrication.
- Evidence of or 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 ability to conduct research independently and collaboratively.
- Will commit to upholding the University’s values, and with the outstanding personal qualities of openness, respectfulness and integrity.

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 (http://www.uq.edu.au/equity) 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.