POSITION DESCRIPTION

Position Title: Postdoctoral Research Fellow

Organisation Unit: School of Mathematics and Physics

Position Number: 3039065

Type of Employment: Fixed Term for one year (with possible extension)

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 Performance Ranking of Scientific Papers for World Universities (43), the US News Best Global Universities Rankings (45), QS World University Rankings (48), Academic Ranking of World Universities (55), and the Times Higher Education World University Rankings (69). UQ again topped the nation in the prestigious Nature Index, and our Academic Ranking of World Universities result in the field of Life and Agricultural Sciences is the highest in Australia at 20.

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 50,000-plus strong student community includes more than 13,000 postgraduate scholars and more than 12,000 international students from 144 countries, adding to its proud 240,000-plus alumni. The University has about 7,000 academic and professional staff and a $1.8 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 $11 billion+ (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 position will be located within University of Queensland Quantum Optics Laboratory and The University of Queensland Precision Sensing Initiative (PSI), and is associated to the Australian Centre for Engineered Quantum Systems. The PSI is a joint initiative between the Schools of Mathematics and Physics and Information Technology and Electrical Engineering (http://www.smp.uq.edu.au/psi). It aims to translate next generation sensing research at The University of Queensland into industry-ready technologies for the biomedical, aerospace, resources and defence industries; and to strengthen the University’s engagement with industry partners.

The School of Mathematics and Physics is a dynamic School within the Faculty of Science at The University of Queensland, committed to excellence in learning, discovery and engagement. The School’s disciplines of mathematics, statistics and physics are internationally recognised and members of its academic staff are leaders in their respective fields. The School is also home to four ARC Centres of Excellence and numerous other research groups.

Presently the School has approximately 110 academic staff and 21 professional staff who provide professional, technical and administrative support. Undergraduate programs offered include Bachelor of Science to honours level as well as double degrees, with postgraduate coursework and research degrees also offered. Some 120 students are presently enrolled in the School’s research higher degree program.

Information about the Faculty and the School may be accessed on the Faculty’s web site at https://www.smp.uq.edu.au/

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-ug

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

DUTY STATEMENT

Primary Purpose of Position

The appointee will manage, maintain and promote the Precision Sensing Initiative (PSI), including outreach to industry and academic users and operation of the Optoelectronic Integration Facility. In addition, they will participate in a dynamic research team led by Prof Bowen undertaking theory in the area of quantum optomechanical sensing and experimentally developing precise optomechanical sensors.
Duties

Duties and responsibilities include, but are not limited to:

- Manage the operations of the Optoelectronic Integration Facility
- Organise outreach events to industry and academics for the PSI
- Actively contribute to an internationally recognised research program in experimental opto-mechanics and photonic sensing
- Conduct research and publish scholarly papers
- Work with colleagues and postgraduates in the development of joint research projects.
- Participate in the supervision of postgraduate students
- Communicate research outcomes, in the form of oral and written presentations, at meetings, in reports, conferences, and in peer-reviewed publications

Research

- Conduct research in the area of cavity optomechanical sensing and publish scholarly papers
- Develop a program of applied and contract research in the area of optics, optomechanics and sensing
- Work with colleagues and postgraduates in the development of joint research projects.

Service and Engagement

- Foster the PSI’s relations with industry, government departments, professional bodies and the wider community.
- Manage the operations of the Optoelectronic Integration Facility
- Actively participate in the activities of the ARC Centre of Excellence in Engineered Quantum Systems
- Participate in the academic life of the School of Mathematics and Physics, including presenting regular seminars on his/her research.
- Foster the School’s relations with industry, government departments, professional bodies and the wider community.
- 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 Professor Warwick Bowen.
SELECTION CRITERIA

- Applicants will possess (or be in the process of obtaining) a PhD or equivalent in physics, engineering, or similar with experience in the fields of experimental opto-mechanics, photonic sensing and/or micro- nanofabricated photonics.
- Demonstrated expert knowledge in theoretical and experimental opto-mechanical sensing and optics and in theoretical quantum opto-mechanics
- An ability to establish effect relationships and to represent and promote physics at a university and wider community level, including industry, government and professional bodies
- Evidence of a contribution to research in experimental physics and/or engineering
- High level interpersonal skills including the ability to work collaboratively with colleagues
- High level written and oral communication skills including the ability to research and write reports
- Demonstrated creativity, productivity and high level of initiative.
- Ability to work effectively both independently and as a member of a team
- Developed industry liaisons and professional contacts will be highly desirable.
- Demonstrated ability to collaborate with experimentalists/theorists will be highly desirable.

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.