# POSITION DESCRIPTION

<table>
<thead>
<tr>
<th>Position Title:</th>
<th>Postdoctoral Research Fellow – Optical Micromanipulation and Optogenetics</th>
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<tbody>
<tr>
<td>Organisation Unit:</td>
<td>School of Mathematics and Physics</td>
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<tr>
<td>Position Number:</td>
<td>TBA</td>
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<tr>
<td>Type of Employment:</td>
<td>Full-time, Fixed-term, 3 year position</td>
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<tr>
<td>Classification:</td>
<td>Research Academic Level A</td>
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## 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 $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.

School of Mathematics and Physics

UQ Physics is located in the School of Mathematics and Physics in the Faculty of Science. The School of Mathematics and Physics has a total of 110 full-time academic staff members, and 21 professional staff who provide professional, technical and administrative support. The School teaches a comprehensive undergraduate program in physics, as well as performing service teaching for students of engineering and the life sciences. There is also an extensive postgraduate research program, which currently has more than one hundred Research Higher Degree students enrolled.

UQ Physics is internationally recognised for its research excellence, and hosts a number of world-class research centres. Details of the research interests of academic staff may be accessed on the School’s web site at http://www.smp.uq.edu.au/

The School of Mathematics and Physics leads the Australian Research Council (ARC) Centre of Excellence (CoE) for Engineered Quantum Systems and hosts nodes of the ARC CoE for Future Low-Energy Electronics Technologies and ARC CoE for Quantum Computing and Communication Technology.

School of Biomedical Sciences

The University of Queensland, School of Biomedical Sciences is a distinguished centre for teaching and research in the academic disciplines of Anatomy, Developmental Biology, Physiology, Pharmacology and Pathology. The School has more than 40 full-time research and teaching staff and is one of the largest Schools of its type in Australia. It has links to other prestigious research centres on the St Lucia campus including the Queensland Brain Institute (QBI), the Institute of Molecular Bioscience (IMB) and the Australian Institute for Bioengineering and Nanotechnology (AIBN). Our diverse research provides an exciting environment for national and international research fellows and higher degree students. It is concerned with advancing the understanding of how cellular mechanisms contribute to the function of the human body in health and disease. Details of the research interests of academic staff may be accessed on the school’s web site at https://biomedical-sciences.uq.edu.au/

In addition to its graduate research programs, the School teaches undergraduate students in Science, Medicine, and Health Sciences.

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 successful candidate will actively contribute to an internationally recognized experimental research program in the area of optical micromanipulation and optogenetics. The specific focus will be on creating sculptured light, and using optical tweezers in combination with optogenetics and Selective Plane Illumination Microscopy (SPIM) for brain-wide imaging and the manipulation of neural activity. These studies will use zebrafish as a model system to reveal information on brain function and dysfunction. The aim is to map ensembles of neurons throughout the brain responding to sensory stimuli, and describe ensembles involved in integrating responses across sensory modalities. The end goal is to explain the mechanisms by which brain-wide communication may be altered.

The successful candidate will participate in undergraduate and/or postgraduate teaching, as well as postgraduate supervision.

Duties

Duties and responsibilities include, but are not limited to:

- Conduct research on the brain function of a zebrafish model using optical micromanipulation
- Work with colleagues and postgraduates in the development and implementation of joint research projects
- Publish research results in international journals and other appropriate refereed publications
- Present research results at international and national meetings
- Teach undergraduate subjects in physics
- Participate in the academic life of the School of Mathematics and Physics and School of Biomedical Sciences, including regular seminars on his/her research.
- Contribute to the processes that enable the academic team to manage the work of the School, including participate in School decision-making and serve on School committees
- 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 Halina Rubinsztein-Dunlop.

SELECTION CRITERIA

- PhD and postdoctoral research experience in an area of interdisciplinary experimental physics related to optical micromanipulation and neuroscience
- Demonstrated experience in optical micromanipulation and complex imaging in the zebrafish model system, with emphasis on light shaping, force detection and characterisation
- A quality research track record relative to opportunity as demonstrated by published papers and conference participation
- Potential for quality teaching of courses in physics
- High level interpersonal skills and ability to work collaboratively with colleagues.
- Commitment to upholding the University's values, and with the outstanding personal qualities of openness, respectfulness and integrity

Seminar

Applicants invited for interview may be asked to present a seminar in conjunction with the selection interview process.

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.

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