

## POSITION DESCRIPTION

<b>Position Title:</b>	Senior Lecturer/Associate Professor in Photonics
<b>Organisation Unit:</b>	School of Information Technology & Electrical Engineering
<b>Position Number:</b>	NEW
<b>Type of Employment:</b>	Full-time, Continuing
<b>Classification:</b>	Academic Level C/D

## 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 (52), QS World University Rankings (47), Academic Ranking of World Universities (55), and the Times Higher Education World University Rankings (60). UQ again topped the nation in the prestigious Nature Index and our Life Sciences subject field ranking in the Academic Ranking of World Universities was 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://uniquet.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 Information Technology & Electrical Engineering**

It is an exciting time to get involved with the School of Information Technology and Electrical Engineering, located on UQ's St. Lucia campus. The School is ramping up its investment in teaching, research and engagement to create an inspiring, diverse and flexible workplace. The direction is backed by a bold, new strategic vision to ensure the School is at the forefront of meaningful research outcomes and pedagogy across its core impact areas of health, data, automation and energy. Boasting strong student enrolments in professionally accredited programs, combined with world-class researchers and facilities, the School is focused on strengthening its position in the global computer science and engineering communities. By attracting the brightest minds and fostering a truly innovative and collaborative work environment, the School will develop global solutions to contemporary issues and mentor the leaders of tomorrow.

Our people are our greatest asset. We offer collaborative, inclusive work and study places, which are enriched by the significant diversity of our staff, students and community. We genuinely believe that creativity and innovation flourishes in an environment where people feel supported, valued and empowered. Mutual respect, inclusivity and accountability are at the cornerstone of UQ's culture.

The School is committed to supporting the career growth of women researchers and have a number of initiatives to support women in developing and achieving a fulfilling research career at the School.

Details of the School may be accessed on its website at <http://www.itee.uq.edu.au/>.

## **Information for Prospective Staff**

The School recognises and values equity and diversity, and encourages applications from any individual who meets the requirements of this position irrespective of gender, sexuality, race, ethnicity, religion, disability, age or other protected attributes. The School strives to provide an inclusive working environment, and along with the University is committed to supporting staff with family and caring responsibilities by providing policies, programs and initiatives to help balance work and family responsibilities.

Further 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**

To engage in research activities of the School, and play a pivotal role in developing terahertz photonics technology in the context of imaging and sensing and to contribute to teaching, course coordination and student supervision.

We seek to appoint an enthusiastic team player who can operate at the leading edge of research with interest in developing new technologies.

## **Duties**

Duties and responsibilities include, but are not limited to:

### **Research**

- Develop an independent and/or team research program including external funding, and achieve international recognition in the research area
- Conduct research and publish scholarly papers in high quality outputs such as refereed international journals, books and conference proceedings
- Develop an ongoing program of applied and contract research in the field and contribute as a chief investigator to collaborations which yield new insights and opportunities
- Prepare research publications and progress reports and participate in regular meetings to discuss project objectives, methodology and outcomes
- Actively seek research funding from internal and external sources including the Commonwealth research granting agencies, the state government and industry □ Develop and maintain a relevant industry network

### **Teaching and Learning**

- Teach into undergraduate and postgraduate courses in electrical engineering, especially in courses related to photonics and solid state devices which may include assisting in the initiation and development of course material
- Make original contributions to teaching which expand knowledge or practice in the relevant discipline
- Actively teach and supervise at honours and postgraduate level □ Provide effective academic advice to students.
- Provide support for other academic staff during absences

### **Service and Engagement**

- Perform a range of administrative functions and leadership within the School and mentor less experienced staff
- 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
- Perform a range of higher level internal duties and provide strong contribution to activities relevant to the school, faculty and the external community, including industry
- Any other duties as reasonably directed by your supervisor

### **For Appointment at level D**

The duties as listed above, as well as the following:

- Develop an ongoing program of discovery, applied and contract research in the field
- Obtain and successfully manage external competitive research grants, and consistently lead successful applications for external competitive research funding
- Lead a research team and foster the research activities of others
- Develop and maintain significant networks across the University, communities and industries and foster an environment where networks and relationships are built and maintained

### **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**

This position will report to the Head of the Photonics and Microwave Engineering Group or designated Supervisor.

## **SELECTION CRITERIA**

### **Essential**

- PhD in Electrical Engineering, experimental physics, or related field
- Knowledge of semiconductor physics and background in THz quantum-cascade lasers
- Experience with the design and application of state-of-the-art THz imaging and spectroscopy systems based on THz quantum-cascade lasers.

- Experience with the design, fabrication and optimization, or characterization of THz quantum cascade lasers.
- National recognition in the area of expertise and a strong record of publications in reputed refereed journals and conferences
- Evidence of a significant contribution to research, including successful external grant applications and ability to lead a research team
- An ability to establish effective relationships and to represent and promote the research area at a university and wider community level, including industry, government and professional bodies
- Demonstrated capacity for undergraduate and postgraduate teaching in a relevant discipline and an active and effective record of principal supervision of research higher degree students
- Developed industry liaisons and professional contacts and experience in liaising and collaborating with external agencies and industry to develop collaborative research initiatives
- Ability to successfully lead a research team to deliver tangible outputs to industry

#### **For Appointment at level D**

The criteria as listed above, as well as the following:

- Demonstrated evidence of course-coordination and effective undergraduate and postgraduate teaching and an active and effective record of principal supervision of research higher degree students to completion
- National and international recognition in the area of expertise and a strong record of publications in reputed refereed journals and conferences
- Strong national and international industry liaisons and professional contacts
- Evidence of outstanding contribution to research and high level success in gaining significant external grant funds
- Ability to successfully lead a research team, deliver tangible outputs to industry, and mentor less experienced staff

#### **Desirable**

- Experience with laser-feedback interferometry (self-mixing) with Quantum-Cascade Lasers
- Integrating THz Quantum-Cascade Lasers with on-chip structures (waveguides, resonators, and filters) for future generations of integrated THz photonics circuits
- Experience with imaging and spectroscopy applications, with the focus on biological and biomedical systems.
- Experience in designing experiments for mode-locking THz QCLs, QCL dynamics, and precise control of the QCL emission frequency.
- Knowledge of applied electromagnetics for photonics.
- Experience in developing and maintaining collaborative relationships with industry stakeholders.

## **Seminar**

Applicants invited for interview may be expected 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.**

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

**Accessibility requirements and/or adjustments can be directed to the contact person listed in the job advertisement.**