



POSITION DESCRIPTION

School of Physics
School of Mathematics and Statistics
Faculty of Science

ABORIGINAL & TORRES STRAIT ISLANDER APPLICANTS ARE
STRONGLY ENCOURAGED TO APPLY

Tenured Faculty Position in Quantum Computing

POSITION NO	0056441
CLASSIFICATION	Senior Lecturer Level C
SALARY	Level C \$135,032 - \$155,698 per annum (pro rata for part-time) Level of appointment is subject to qualification and experience
SUPERANNUATION	Employer contribution of 17%
WORKING HOURS	Full-Time (1.0 FTE)
BASIS OF EMPLOYMENT	Continuing – Tenured position
OTHER BENEFITS	http://about.unimelb.edu.au/careers/working/benefits
HOW TO APPLY	Online applications are preferred. Go to http://about.unimelb.edu.au/careers , select the relevant option ('Current Staff' or 'Prospective Staff'), then find the position by title or number.
CONTACT FOR ENQUIRIES ONLY	Prof Harry Quiney or Prof Howard Bondell Email: quiney@unimelb.edu.au or howard.bondell@unimelb.edu.au <i>Please do not send your application to this contact</i>

For information about working for the University of Melbourne, visit our website:
about.unimelb.edu.au/careers

Acknowledgement of Country

The University of Melbourne acknowledges the Traditional Owners of country throughout Australia. The University recognises the unique place held by Aboriginal and Torres Strait Islander peoples as the original custodians of country and their continued connection to the land, waterways, songlines and culture. The University respects all Aboriginal and Torres Strait Islander People and warmly embrace those students, staff, Elders and collaborators who identify as First Nations.

Position Summary

As part of the University initiative in quantum computing, the School of Mathematics and Statistics and School of Physics are seeking to make a joint appointment of an outstanding academic to the tenured faculty position of Senior Lecturer in Quantum Computation.

The successful candidate will undertake high-level research of exceptional promise in mathematical and theoretical aspects of quantum computing (which may be interpreted to mean fundamental quantum information through to more applied quantum software aspects) and participate in teaching at undergraduate and postgraduate levels. As well as providing leadership within the research area, the successful candidate will develop collaborative links within the Schools and across the University as well as externally, attract graduate researchers of high caliber, secure competitive research funding in line with the strategic direction of the Schools.

The appointee will have a core commitment to teaching and subject development within the Schools' undergraduate and MSc programs, and supervise research students at undergraduate, MSc and MPhil/PhD levels. The position will be housed in either the School of Mathematics and Statistics or the School of Physics as best supports the successful candidate's primary research interests.

1. Key Responsibilities

The position description should be read alongside [Academic Career Benchmarks and Indicators](#). A level C academic has mastery of academic skills and excellent academic performance (meeting or approaching towards the benchmarks).

1.1 RESEARCH AND RESEARCH TRAINING

The appointee will be expected to:

- ▶ Conduct a program of research that contributes to the quantum computing discipline in the School of Mathematics and Statistics and the School of Physics.
- ▶ Publish research findings in international refereed journals and present results at seminars, conferences, and meetings.
- ▶ Conduct of research that contributes to the School's' strategic research priorities in the broad area of quantum computing.
- ▶ Collaborate where appropriate with internal and external collaborators, including Faculty of Engineering and IT, Faculty of Business and Economics, other universities, local government and industry partners.
- ▶ Actively supervise research students (undergraduate, graduate coursework, MPhil and PhD students).

- ▶ Prepare research proposals for submission to external funding bodies to successfully obtain external funding to support their research.
- ▶ Engage with the larger community via interactions with government, industry, the media, public lectures, and/or outreach activities.
- ▶ Significantly contribute to research projects including leadership of research teams or management of projects where applicable.

1.2 TEACHING AND LEARNING

The appointee will be expected to:

- ▶ Actively participate in the Schools' undergraduate and graduate teaching programs, including the preparation and delivery of lectures, practicals, and field work programs.
- ▶ Actively contribute to the development and review of curriculum, along with familiarisation with the role of multimedia in relation to the curriculum, and develop high quality, innovative subject material.
- ▶ Set, participate in, and mark student assessments.
- ▶ Teach subjects to a standard that delivers a high-quality learning experience.
- ▶ Provide academic mentoring and assistance to students.

1.3 LEADERSHIP AND SERVICE

The appointee will be expected to:

- ▶ Contribute to a range of administrative functions, including those connected with teaching responsibilities and the conduct of the academic affairs of the School.
- ▶ Actively participate in School and/or Faculty meetings and/or the committees that have responsibility for the academic affairs of the School.
- ▶ Secure involvement in professional activity in the discipline
- ▶ Actively contribute to School activities such as Open day to promote student engagement.

1.4 OTHER DUTIES

The appointee will be expected to:

- ▶ Actively participate in the University Performance Development Framework.
- ▶ Ensure an up-to-date record of University compliance courses, such as, but not limited to, Appropriate Workplace Behaviour, PDF for Staff and Supervisors, OH &S training courses.
- ▶ Occupational Health and Safety (OH&S) and Environmental Health and Safety (EH&S) responsibilities as outlined in section 4.

2. Selection Criteria

2.1 ESSENTIAL

- ▶ A PhD in a relevant area of quantum computing, quantum information, mathematics and/or physics
- ▶ An established track record of high-quality publications in leading international journals, relative to career opportunity in the general area of theoretical quantum computing.
- ▶ A demonstrated capacity to provide leadership in quantum computing, establish collaborations and engage with a broad range of researchers nationally and internationally.
- ▶ Evidence of the ability to attract external research funding from national competitive research bodies and other sources.
- ▶ A demonstrated capacity to supervise undergraduate and graduate research students.
- ▶ Excellent oral and written communication skills in English.
- ▶ An aptitude for independent research with a strong record of publication, a record of gaining external competitive research grants, commensurate with experience and opportunities, and the ability to develop research links with other departments/groups nationally and/or internationally.
- ▶ A track record of success in teaching at university level, the ability to teach large undergraduate classes, and the ability to develop and teach relevant discipline subjects at a graduate level.
- ▶ Demonstrated ability to work collaboratively and to contribute to the organisational development of the School Physics and the School of Mathematics and Statistics, Faculty and the University as a whole.

2.2 DESIRABLE

- ▶ A potential or demonstrated capacity to initiate or contribute to service activities within the School, the Faculty of Science, and the broader professional community.
- ▶ A demonstrated ability in the area of interpersonal and organisational skills including the ability to project manage and meet deadlines.

2.3 OTHER JOB-RELATED INFORMATION

- This position requires the incumbent to hold a current and valid Working with Children Check.
- Occasional work out of ordinary hours, travel, etc.

3. Equal Opportunity, Diversity and Inclusion

The University is an equal opportunity employer and is committed to providing a workplace free from all forms of unlawful discrimination, harassment, bullying, vilification and victimisation. The University makes decisions on employment, promotion and reward on the basis of merit.

The University is committed to all aspects of equal opportunity, diversity and inclusion in the workplace and to providing all staff, students, contractors, honorary appointees, volunteers and visitors with a safe, respectful and rewarding environment free from all forms of unlawful discrimination, harassment, vilification and victimisation. This commitment is set out in the University's Advancing Melbourne strategy that address diversity and inclusion, equal employment opportunity, discrimination, sexual harassment, bullying and appropriate workplace behaviour. All staff are required to comply with all University policies.

The University values diversity because we recognise that the differences in our people's age, race, ethnicity, culture, gender, nationality, sexual orientation, physical ability and background bring richness to our work environment. Consequently, the People Strategy sets out the strategic aim to drive diversity and inclusion across the University to create an environment where the compounding benefits of a diverse workforce are recognised as vital in our continuous desire to service for excellence and reach the targets of Advancing Melbourne.

4. Occupational Health and Safety (OHS)

All staff are required to take reasonable care for their own health and safety and that of other personnel who may be affected by their conduct.

OHS responsibilities applicable to positions are published at:

<http://safety.unimelb.edu.au/topics/responsibilities/>

These include general staff responsibilities and those additional responsibilities that apply for Managers and Supervisors and other Personnel.

5. Other Information

5.1 SCHOOL OF PHYSICS

www.physics.unimelb.edu.au/

The University of Melbourne's School of Physics is one of Australia's leading Physics Schools. It has achieved this status through the high quality of its research and teaching programs. The School offers a wide range of physics subjects to undergraduate and postgraduate students, and performs research in the following areas: Astrophysics, Atomic, Molecular and Optical Physics, Experimental Condensed Matter Physics, Experimental Particle Physics, Materials Science, Physical Biosciences, Theoretical Condensed Matter Physics and Theoretical Particle Physics.

The School of Physics hosts the following ARC Centre of Excellence groups:

- ▶ ARC Centre of Excellence for Transformative Meta-Optical Systems (TMOS)
- ▶ ARC Centre of Excellence for Dark Matter Particle Physics

- ▶ ARC Centre of Excellence for Gravitational Wave Discovery
- ▶ ARC Centre of Excellence in All Sky Astrophysics in 3 Dimensions
- ▶ ARC Centre of Excellence for Quantum Computation and Communication Technology (CQC²T)

The School also plays a major role in the Australian Synchrotron research program, and in the development of the Stawell Underground Physics Laboratory.

Currently some 30 academics, 51 research-only staff, more than 95 postgraduate students and 72 associates supported by 23 professional staff make up the School of Physics. The School additionally hosts 1 Thomas Baker Chair and Melbourne Laureate Professor, 2 ARC Future Fellows and 1 ARC Discovery Early Career Researcher. Skilled technical staff operate, maintain and develop complex instrumentation and equipment to support the teaching and research activities of the School. The School is located in the David Caro building on the Swanston Street boundary of the University campus. The Head of School and majority of the Professional staff are housed on the ground floor of the building to act as the first point of contact for students, staff and visitors.

5.2 SCHOOL OF MATHEMATICS AND STATISTICS

<http://www.ms.unimelb.edu.au>

The University of Melbourne's School of Mathematics and Statistics is one of Australia's leading mathematics and statistics schools. It has achieved this status through the high quality of its research and teaching programs. The School offers a wide range of subjects to undergraduate and postgraduate students and is involved in aspects of community life that impact on the interests of the School and the discipline.

The School of Mathematics and Statistics has a total of 70 continuing teaching and/or research staff; 34 research only staff and consultants; 16 academic specialists and 16 support staff. The School has over 240 casual and honorary staff. In 2020, there were 90 Research Higher Degree and 278 Coursework Master of Science students. Five members of the School staff and one Emeritus Professor are members of the Academy of Science.

Infrastructure support for research and basic information technology facilities are provided to all members of the department. Special facilities such as high-end workstations and salaries for research fellows are supported through individual competitive external research grants. Members of the School have had considerable success at attracting support from the Australian Research Council. The school currently hosts two ARC Centres of Excellence, and has hosted four ARC Laureate Fellows, ten ARC Future Fellows and fourteen DECRA Fellows.

It is one of the objectives of the University to develop and maintain a strong international profile. In this context, members of the School have strong collaborative links with colleagues in the United States of States of America, most countries in Europe and the Asia-Pacific region.

5.3 FACULTY OF SCIENCE

<http://www.science.unimelb.edu.au>

Science at Melbourne is a global leader across fundamental and impactful scientific research and education. Science begins with curiosity, and we are dedicated to understanding the universe from the level of sub-atomic particles to the solar system. We aim to be leaders who positively impact the community locally and globally, addressing major societal issues from climate change to disease. Our discoveries help build an understanding of the world around us.

Our strength is our breadth of expertise. We are the second largest faculty in the University comprising seven schools: Agriculture, Food, Forest & Ecosystems Sciences, BioSciences, Chemistry, Geography, Earth & Atmospheric Sciences, Mathematics & Statistics, Physics and Veterinary Science.

This depth of knowledge positions the faculty to better understand, explore and impact our world and humanity, within a truly comprehensive Faculty of Science.

We have more than 150 years of experience in pioneering scientific thinking and analysis, leading to outstanding teaching and learning and offer a curriculum based on highly relevant research. We aim to train students with the knowledge and intellectual flexibility to drive the industries of tomorrow and lead across all levels of society.

We offer a range of undergraduate, honours, graduate and research degrees; enrolling more than 11,500 undergraduate and 3,750 graduate students.

We are dedicated to delivering leading transformative educational outcomes, underpinned by research, and an inclusive and inspiring student experience.

Excellence comes in many forms and diversity of thought, perspective and disciplines is essential to deliver globally leading science. At the core of our success is our focus on an inclusive environment for all in our community. Our Faculty's focus on equity, inclusion and belonging is grounded in our endeavour to ensure we are best placed to advance research, teaching and serve diverse national and global communities.

As a Science community we sit across six of the University's seven campuses – Parkville, Dookie, Burnley, Creswick, Shepparton and Werribee. This reach provides us with a unique perspective that is beneficial to our teaching and research. It also means we can offer our students a greater variety of learning experiences and internships to engage with industry partners to solve real-world issues.

We are highly research focused, performing strongly in the ARC competitive grants schemes, often outperforming the national average. The Faculty of Science is also currently growing its competitiveness and standing in the NHMRC space.

The Faculty is custodian of the Bio21 Molecular Science and Biotechnology Institute, Office for Environmental Programs, Australian Mathematical Sciences Institute (AMSI), the Indigenous Knowledge Institute and home to numerous Centres.

5.4 THE UNIVERSITY OF MELBOURNE

Established in 1853, the University of Melbourne is a leading international university with a tradition of excellence in teaching and research. The main campus in Parkville is recognised as the hub of Australia's premier knowledge precinct comprising eight hospitals, many leading research institutes and a wide-range of knowledge-based industries. With

outstanding performance in international rankings, the University is at the forefront of higher education in the Asia-Pacific region and the world.

The University employs people of outstanding calibre and offers a unique environment where staff are valued and rewarded.

Further information about working at The University of Melbourne is available at <http://about.unimelb.edu.au/careers>.

5.5 ADVANCING MELBOURNE

The University's strategic direction is grounded in its purpose. While its expression may change, our purpose is enduring: to benefit society through the transformative impact of education and research. Together, the vision and purpose inform the focus and scale of our aspirations for the coming decade.

Advancing Melbourne reflects the University's commitment to its people, its place, and its partners. Our aspiration for 2030 is to be known as a world-leading and globally connected Australian university, with our students at the heart of everything we do.

We will offer students a distinctive and outstanding education and experience, preparing them for success as leaders, change agents and global citizens.

We will be recognised locally and globally for our leadership on matters of national and global importance, through outstanding research and scholarship and a commitment to collaboration.

We will be empowered by our sense of place and connections with communities. We will take opportunities to advance both the University and the City of Melbourne in close collaboration and synergy.

We will deliver this through building a brilliant, diverse and vibrant University community, with strong connections to those we serve.

The means for achieving these goals include the development of the University of Melbourne's academic and professional staff and the capabilities needed to support a modern, world-class university. Those means require a commitment to ongoing financial sustainability and an ambitious infrastructure program which will reshape the campus and our contribution to the communities we engage with. This strategy, and the priorities proposed, is centred around five intersecting themes; place, community, education, discovery and global.

5.6 GOVERNANCE

The Vice Chancellor is the Chief Executive Officer of the University and responsible to Council for the good management of the University.

Comprehensive information about the University of Melbourne and its governance structure is available at <http://www.unimelb.edu.au/governance>