2025

ANNUAL REPORT

QUBIC

The Australian Research Council Centre of Excellence in **Quantum Biotechnology**

Contents

Message FROM THE DIRECTOR

$17.6M

Centre grant funding

$1.3 billion

*Global quantum biotechnology projected economic value in 2032**

*McKinsey: Quantum Technology Monitor Report, 2025

2025 has been a transformative and deeply rewarding year for QUBIC. A year where our science accelerated, our collaborations expanded, and our community grew stronger and more connected than ever. What began as a collection of researchers across five nodes has become a cohesive Centre with shared values, a common scientific language, and a clear purpose. That shift has been powerful. It has enabled new conversations, sparked ambitious ideas, and brought together people and disciplines that rarely intersect yet are essential to the future of quantum biotechnology.

This year, we saw how cohesion can translate directly into impact. Our researchers worked across disciplines to uncover how key proteins influence neurodegeneration, and to pioneer imaging techniques capable of revealing cellular properties with unprecedented precision. These discoveries reflect the depth of talent within our Centre. With 51 publications in leading journals and more than $17 million in grants and competitive funding, QUBIC has strengthened its position as an international leader in quantum bioscience.

One of our most exciting achievements has been the rapid growth of our magnetic brain imaging program. With the appointment of clinical Chief Investigator Professor Marta Garrido, significant investment in next-generation sensor platforms, and new collaborations with clinical and industry partners, we are pushing precision brain imaging into real-world settings from clinics to sports fields. It is remarkable to see quantum technologies moving beyond the laboratory and into environments where they can have a meaningful human impact.

We also launched the Queensland Quantum Decarbonisation Alliance (QDA), the world's first major research initiative dedicated to applying quantum technologies to energy and net-zero challenges. Developed with the The University of Queensland, Griffith University, CSIRO, PsiQuantum and industry partners, QDA represents a bold vision of bringing quantum capability to one of the defining challenges of our century. It is exactly the kind of ambitious, future-facing collaboration QUBIC was created to enable.

Our reach continues to grow. This year, we launched the first international conference in a series on quantum technologies in the life sciences and contributed to major national events including inSTEM, AusBiotech, AusMedTech, Quantum Australia, Q^{x} and Quantum Meets Decarbonisation. Our industry collaborations particularly with PsiQuantum and Sanofi are deepening, demonstrating the increasing translational relevance of QUBIC's research.

None of this would have been possible without our outstanding operations team, now nine staff across five nodes. They have supported events, reporting, engagement activities and the everyday coordination that keeps a distributed Centre functioning smoothly. Their professionalism and commitment have been essential in sustaining QUBIC's momentum through a period of rapid growth.

As we look ahead, I am proud of what QUBIC is becoming: a Centre where world-class science and a strong, inclusive culture move forward together; where interdisciplinary teams tackle problems that truly matter; and where quantum technologies are being shaped into tools that can improve lives and strengthen our future.

Thank you to every member of our community – researchers, students, partners and staff for your contribution to this extraordinary year. I look forward to what we will achieve together in the next.

Professor Warwick Bowen

Director,
ARC Centre of Excellence in Quantum Biotechnology (QUBIC)

2025 Highlights

INTERNATIONAL YEAR OF QUANTUM

QUBIC took the opportunity of the International Year of Quantum to showcase how a century of quantum discovery is now transforming the life sciences.

We hosted 13 public lectures including talks from global quantum leaders – Nobel Laureate Prof Donna Strickland and PsiQuantum founder Prof Terry Rudolph. We engaged thousands of students and the public at over 30 events including World Science Festival and the National Quantum & Dark Matter Road Trip, and led key innovation forums that built new partnerships and national visibility.

WORLD FIRST INTERNATIONAL CONFERENCE

QUBIC made global history in 2025 by hosting qLIFE, the world's first international conference dedicated to quantum technologies in the life sciences.

As a flagship International Year of Quantum event, 43 speakers from 16 countries across quantum science, biology, engineering, medicine and industry came together to accelerate real-world impact. With keynotes from leading researchers and companies including IBM, Google, PsiQuantum, SandboxAQ and NVision Imaging, qLIFE built the global, cross-disciplinary community needed to drive the field forward.

BUILDING CAPACITY

We strengthened Australia's quantum biotechnology workforce through targeted training designed to equip early and mid-career researchers with the skills to lead at the intersection of quantum and the life sciences, to ensure Australia remains at the forefront of quantum biotechnology.

We delivered eight workshops in innovation, communication, plain-language writing, publishing and policy translation. The QUBIC Winter School and Themes Workshop added practical training with experts from Science in Public, Nature and UTS's Transdisciplinary School.

CELEBRATING EXCELLENCE

The excellence of our people and the global impact of their work has been recognised through 62 awards, including:

A/Prof Elizabeth Hinde received the Biophysical Society's Michael and Kate Bárány Award and was appointed to the ARC College of Experts. Dr Nisha Mehta was honoured with the AMMA Naomi Haworth Early Career Award. Professor Halina Rubinsztein-Dunlop received the 2025 SPIE Gold Medal, and Max Foreman was awarded a John Monash Scholarship to begin his DPhil at Oxford.

HOT PUBLICATIONS

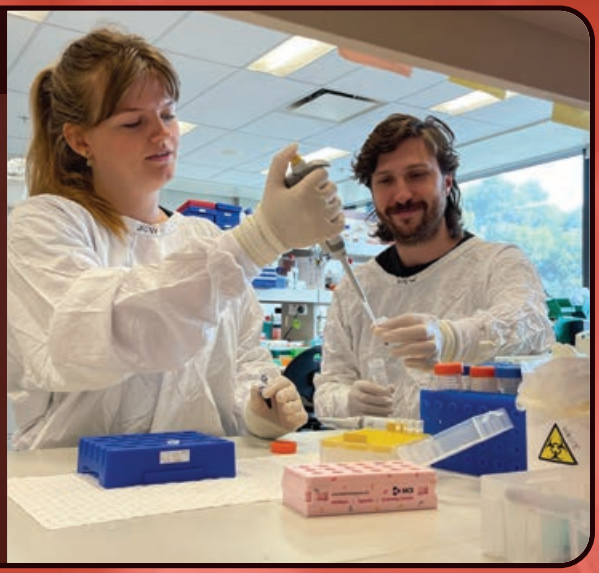
QUBIC researchers continue to publish in outstanding journals such as Nature Biotechnology, Science Advances and Nature Mental Health. This reflects the strength and breadth of our science, from quantum-enabled cellular imaging and mechanobiology to molecular design, biomolecular condensates and predictive processing in psychosis.

In 2025 we published 51 papers, with 86% in Q1 journals. A standout example was a perspective paper on biomolecular condensates, shaping the future direction of this field. Co-authored by eleven QUBIC researchers across nodes and disciplines, this is a genuine example of the Centre's collaborative model in action.

MULTIDISCIPLINARY SCIENCE

With 40% of QUBIC's research publications spanning nodes and disciplines, the Centre continues to accelerate multidisciplinary science. Through 64 collaborations, including QUBIC Connect-funded cross-node visits, researchers combined methods and perspectives to push the boundaries of what quantum biotechnology can achieve.

This included advances such as diamond voltage-imaging microscopy for motor neurone disease and cross-theme work on TDP-43 using Brillouin microscopy and optical tweezers.



INDUSTRY ENGAGEMENT

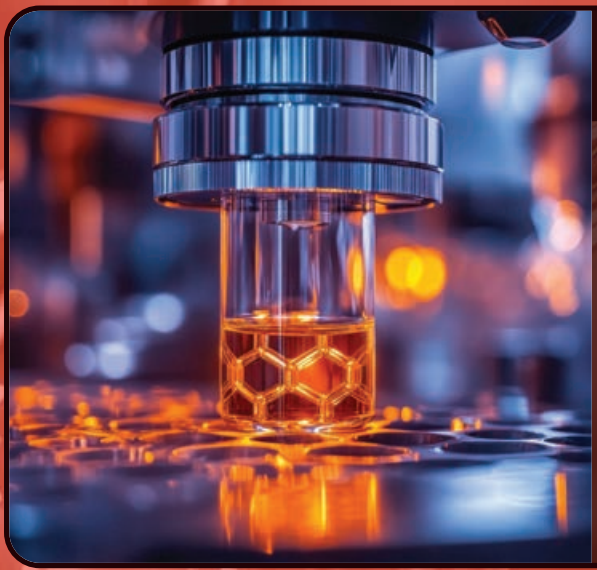
QUBIC deepened industry engagement nationally and internationally across health, biotech, medtech, defence and advanced manufacturing. Our researchers presented at 33 events including Q^{x}, Quantum Meets Biotech, qLIFE, AusMedTech and AusBiotech, demonstrating our capabilities and translation opportunities.

We engaged IBM, Thermo Fisher, Novotech, Mind Bioscience, CSIRO, Queensland Health and the Queensland Defence Science Alliance, strengthening partnerships and highlighting growing national interest in quantum-enabled health, diagnostics and sensing.

ENGAGING THE PUBLIC

We continued to build understanding, trust and future capability in quantum biotechnology by prioritising engagement beyond the lab and connecting our research with schools, educators, policymakers and the public.

In 2025, QUBIC reached more than 3,000 students through national events, school outreach, workshops and public talks. Activities included the World Science Festival, Something Fest, NYSF Year 12 Program, World Quantum Day, and the National Quantum & Dark Matter Road Trip, showcasing real-world applications of quantum science across health, sustainability and industry.



EMBEDDING DIVERSITY, EQUITY & INCLUSION

At QUBIC we support the best from all backgrounds to succeed in quantum biotechnology and STEM, which strengthens QUBIC's culture and ensures our science is enriched by the diversity of people driving it.

This year, our Aspire Fellowship and Fostering Inclusive Science programs opened new pathways for underrepresented researchers and partnerships with the National Youth Science Forum broadened access for young LGBTQIA+ scientists. The inSTEM Conference provided tools for creating safer, more inclusive research environments.

REACHING NET ZERO

In a major new initiative, QUBIC established the Queensland Quantum Decarbonisation Alliance (QDA) to harness quantum technologies towards reaching net zero. Backed by a $10M Queensland Government investment, the QDA connects quantum sensing and computing expertise with industry needs across energy, resources, agriculture and heavy industry.

The Alliance launched at the 2025 Quantum Australia Conference, and with CSIRO and Quantum Australia, we ran the first Quantum Meets Decarbonisation workshop, bringing researchers, industry and government together to address critical Australian net-zero challenges.

FUNDING & INFRASTRUCTURE

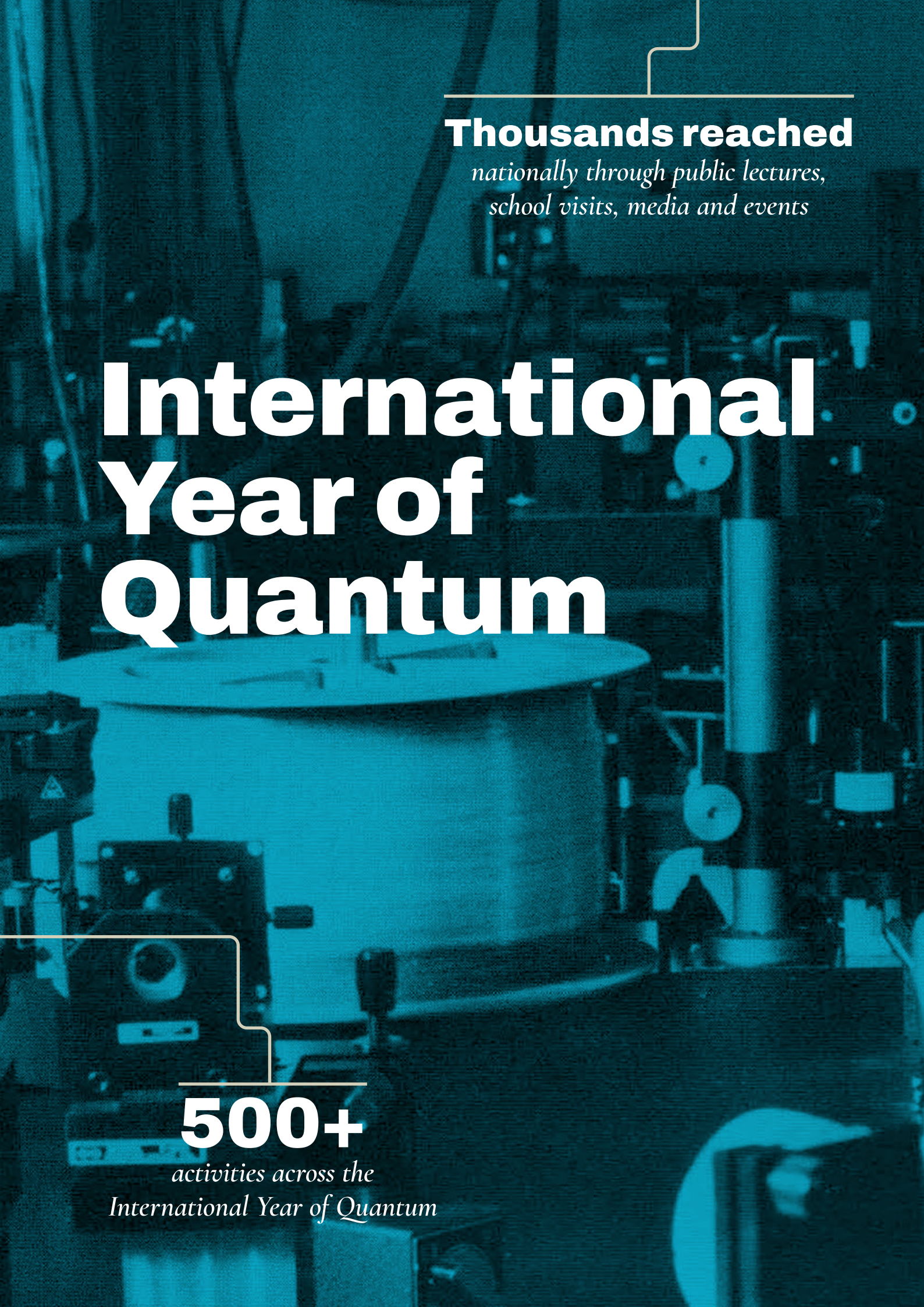
QUBIC multiplied ARC investment, securing more than $17M in additional research funding to expand Australia's quantum biotechnology capability. New grants supported frontier work and infrastructure in imaging, molecular science, neurobiology, diagnostics, environmental health and computational modelling.

These investments reflect strong national confidence in QUBIC's leadership and significantly extend our capacity to deliver scientific and translational breakthroughs.

EMCR MOMENTUM

Our early and mid-career researchers drove much of QUBIC's momentum in 2025. They've given over 40 scientific talks, and led 12 interdisciplinary projects across nodes, contributing to major scientific advances.

Many stepped into visible leadership roles, presenting at national and international forums, and representing QUBIC at qLIFE and Q^{x}. Others secured competitive funding and helped develop new platforms and capabilities. They mentored students, supported colleagues and strengthened the collaborative culture that underpins our science. Their achievements reflect the strength of QUBIC's emerging leaders and the future of quantum biotechnology in Australia.



Thousands reached

nationally through public lectures, school visits, media and events

International Year of Quantum

500+

activities across the International Year of Quantum

Nobel Laureate Professor Donna Strickland

Turning a GLOBAL MILESTONE *into National Momentum*

As the world marked 100 years of quantum science, QUBIC used the International Year of Quantum to drive research for the public good by building capability, engaging communities, and turning quantum promise into real-world impact.

In 2025, the United Nations declared the International Year of Quantum Science and Technology (IYQ), marking 100 years since the birth of quantum mechanics. The year offered a moment to reflect on a remarkable scientific journey from abstract theories developed in the 1920s, through Richard Feynman's early vision for quantum computation, to the technologies now emerging that allow scientists to sense, compute and image the world in entirely new ways.

For QUBIC, the International Year of Quantum arrived at exactly the right time.

QUBIC exists to lead quantum research for societal benefit, applying quantum technologies to challenges across the life sciences, from early cancer diagnostics and neurodegenerative disease to agricultural sustainability and environmental monitoring. A key part of our mission is to ensure that discoveries move beyond the lab toward industry, impact and community benefit.

QUBIC's 2025 priorities: strengthening national capability, translating research into societal and economic benefit, engaging the community, and hosting the inaugural International Conference on Quantum Technology in the

Dr Pavlina Naydenova with students from The Glennie School, Toowoomba

Nobel Laureate Professor Donna Strickland

Life Sciences (qLIFE) aligned naturally with the spirit of the International Year of Quantum.

To celebrate IYQ2025, we supported Nobel Laureate Professor Donna Strickland's National Quantum Tour, which brought world-leading quantum science to audiences across Australia. QUBIC researchers connected with over 1200 students at schools across the country, enabling them to see quantum not as something distant or abstract, but as something they can actively participate in. Public lectures on quantum physics and its real-world applications created space for broader conversations about why quantum matters and why it matters now.

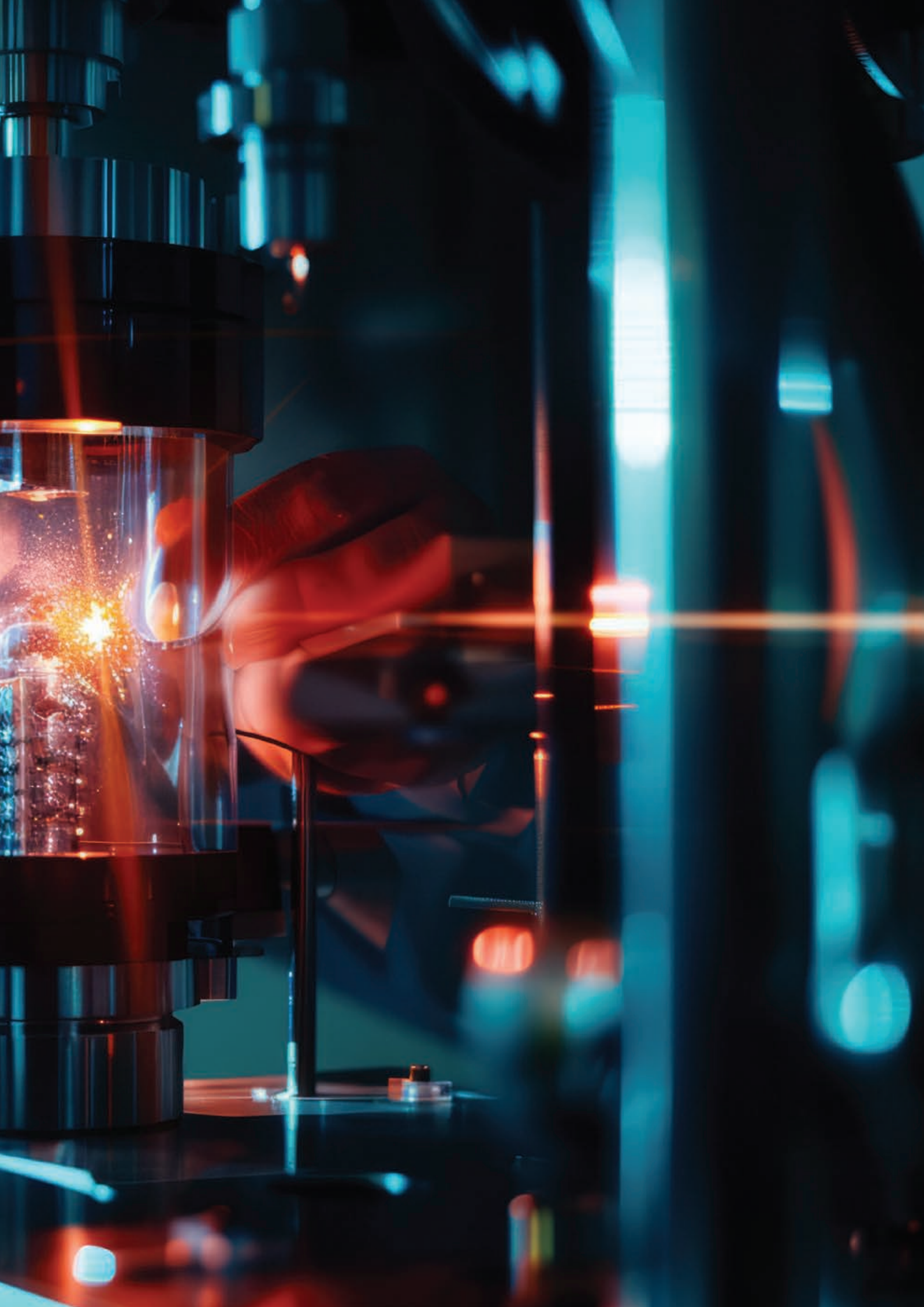
At the same time, we advanced our commitment to inclusion, ethics and access through initiatives such as the inSTEM Conference, working with partner Centres to support underrepresented groups and embed inclusive practice across the research ecosystem.

QUBIC also brought research, industry and government together at a national level. Events such as Quantum Meets Biotech, Quantum Meets Decarbonisation and the Q^x Summit connected quantum researchers with industry leaders, investors and policymakers, at a time when Australia's National Quantum Strategy forecasts up to 50,000 jobs and $9 billion in revenue by 2045. These forums focused on how quantum technologies can deliver tangible benefits in health, sustainability and economic resilience.

QUBIC culminated the year by hosting qLIFE 2025 in Wollongong, the first international conference dedicated to quantum technologies in the life sciences. qLIFE brought the global quantum biotechnology community to Australia, strengthened international collaborations and showcased the country as a global leader in quantum-enabled life sciences research.

A century after scientists first conceived quantum mechanics, the challenge is no longer whether quantum technologies will matter, but how society shapes and applies them. In 2025, QUBIC transformed a global milestone into national and international momentum, advancing science, building capability and accelerating quantum's benefit for people and communities.

Our Expertise



National Capability *in* QUANTUM BIOTECHNOLOGY

QUBIC delivers a nationally coordinated capability that integrates quantum technologies with the life sciences at a scale unmatched in Australia and second-to-none internationally. With more than 180 researchers across five university nodes and over twenty disciplines spanning physics, chemistry, biology, engineering, medicine, AI and law, the Centre brings together deep interdisciplinary expertise into a single, coherent research ecosystem. This breadth enables QUBIC to tackle complex biological and technological challenges that no single institution or field could address alone.

Our capability is anchored by internationally recognised Chief Investigators who lead world-class programs in quantum measurement, NV-diamond sensing, photonics engineering, molecular simulation, biological imaging, computational biology, neuroimaging and responsible innovation. This leadership is supported by research fellows, HDR candidates and platform scientists who together operate 17 dedicated quantum biotechnology laboratories, more than 20 major sensing and imaging platforms, and 30+ high-end microscopes across the Centre.

Quantum research, Bowen lab, University of Queensland

In 2025, QUBIC's national infrastructure expanded significantly. At Melbourne, we commissioned Australia's first room-temperature OPM-MEG facility, equipped with 50 wearable quantum magnetic field sensors that enable high-sensitivity, motion-tolerant human brain imaging. At Wollongong, a new quantum-enabled microscope was co-developed through the Do-Ha–McCloskey collaboration, adding unprecedented capability for probing neural and cellular systems. These platforms complement a broader suite of national-scale facilities including nanofabrication and semiconductor packaging hubs, advanced light and live-cell imaging systems, and high-performance computing infrastructure such as the 14,000-core Bunya supercomputing cluster at UQ, and more than 5 million annual national HPC core hours accessed at NCI and Pawsey.

QUBIC's capability is strengthened further by major institutional investments across nodes, including the $230 million UTS Science Precinct and specialised synthesis and electro-photochemistry laboratories at Flinders. These facilities, paired with QUBIC's research and responsible innovation programs, provide the national platform needed to link quantum technologies with real biological systems, advanced computation and translational pathways.

Together this integrated capability positions Australia to lead globally in quantum biotechnology and to translate quantum advances into practical benefits for health, sustainability and industry.


180+
researchers
17
quantum biotech labs
50
wearable OPM-MEG sensors
20+
sensing & imaging platforms
2
new quantum enabled microscopes (UoW, UTS)

Quantum Tools *to* UNDERSTAND LIFE

Many of the most important biological processes happen at time and length scales that we cannot see, and that push classical tools to their limits. QUBIC exists to build the interdisciplinary capability needed to move beyond those limits.

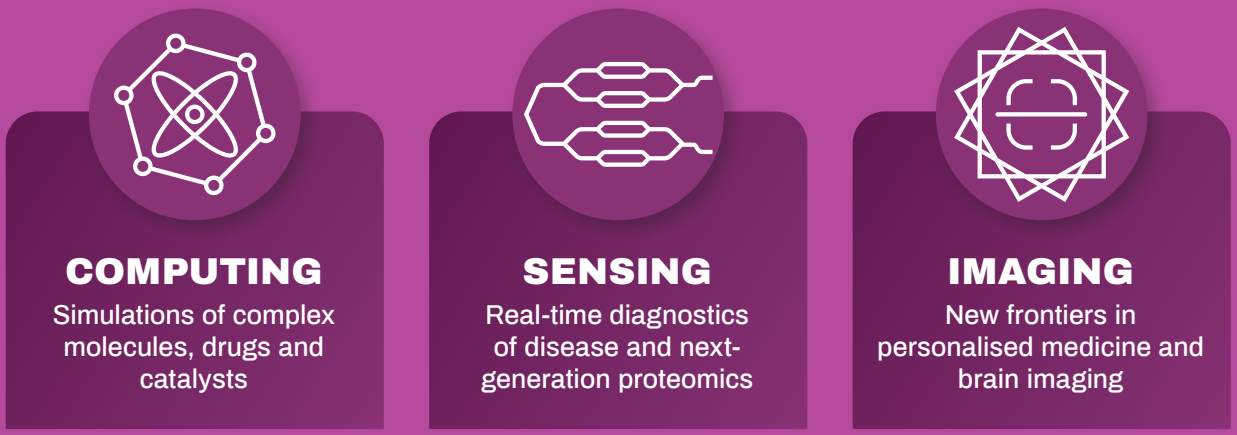
We do this by:

- **Creating new quantum-enabled tools** to detect weak signals and small changes in living systems
- **Linking experiment and theory,** using simulation and modelling to interpret complex biological behaviour
- **Working across institutions and themes,** so that biology, physics, chemistry, photonics and computation evolve together, rather than in isolation.

This approach turns fundamental discovery into shared capability: platforms, methods and insights that can be reused across projects, scaled through collaboration, and translated over time into outcomes for healthcare, diagnostics and biotechnology.

Quantum technologies are poised to transform the life sciences.

McKinsey (2023) estimates that sectors such as healthcare, pharmaceuticals and chemistry could realise hundreds of billions of dollars in value by 2035, forming the largest single market segment for quantum innovation. Quantum technologies are already unlocking powerful new capabilities:



Biotechnology has already reshaped society from precision medicine and genomics to clean energy and sustainable agriculture.

QUBIC is driving the convergence of quantum and the life sciences to accelerate scientific breakthroughs and capture economic value.


50,000
JOBS
&
$9B
ANNUAL REVENUE
Projected impact of Australia's quantum industry by 2045

AT A GLANCE

MOLECULES

Our Molecules theme builds capability to understand and manipulate peptides and proteins using quantum technologies, enabling high-sensitivity, high-speed studies of molecular interactions.

Theme leads

Dr Martin Stroet

Professor Alan Mark

CELLS

Our Cells theme develops advanced imaging and sensing technologies to reveal cellular dynamics at nanoscale resolution with ultra-high sensitivity — while minimising damage to living samples.

Theme leads

A/Prof Elizabeth Hinde

Professor Irina Kabakova

BRAIN

Our Brain theme advances neural imaging through quantum technologies, aiming for real-time measurement of brain electromagnetic fields at sub-cellular resolution, including quantum-enabled microscopes and pathways toward room-temperature MEG.

Theme leads

Professor Lezanne Ooi

A/Prof David Simpson

Advancing Quantum Biotechnology

In 2025, QUBIC made significant progress toward integrating quantum technologies with biological and molecular science. Across our three themes, teams combined cutting-edge experimental platforms with quantum computation, multiscale modelling and cross-node collaboration. This integration positions QUBIC at the leading edge of a rapidly emerging field, one in which quantum innovation and biotechnological insight advance together.

Molecules: Predictive control at the quantum–biomolecular interface

In the Molecules Theme, researchers advanced fundamental understanding of chemical and biomolecular processes by tightly coupling **quantum simulations**, **NV-centre sensing** and **biomolecular optomechanics.** This coordinated effort is generating predictive models that connect quantum phenomena to molecular behaviour, offering new insight into protein dynamics, catalytic pathways and vibrational states.

The theme also expanded its translational potential. Work on quantum light–matter interactions is opening pathways toward single-protein detection, and the theme strengthened industry links through NDIG and CTCP-funded collaborations. Several high-impact manuscripts reflecting this progress are currently under review in Nature Synthesis, Nature Communications, JACS and Nature Chemistry.

Cells: New capabilities in quantum-enabled cellular imaging

The Cell Theme continued to push the limits of what can be measured inside living systems. **Brillouin microscopy**, **dual-mode nanothermometers** and **NIR-II probes** enabled high-resolution, label-free imaging that is revealing the physical underpinnings of cancer biomechanics and metabolic heterogeneity.

A major milestone came through our Quantum Image Scanning Microscopy (Q-ISM) platform, which achieved a four-fold improvement in spatial resolution for live-cell imaging, demonstrating the value of quantum-enhanced photonics in practical biological contexts. Complementing these advances, collaborations delivered sophisticated computational pipelines to interpret high-density imaging data. QUBIC teams shared these achievements through 129 plenary, keynote and invited talks, and major conferences, further establishing leadership in quantum biophotonics.

Brain: Transformative progress in brain-scale quantum imaging

In the Brain Theme, QUBIC made major advances in quantum neuroimaging and electrophysiology. The installation of **Diamond Voltage Imaging Microscopes** at UoM and UoW marks a significant capability milestone, enabling direct visualisation of neuron membrane potentials in real time.

Complementary work in quantum magnetometry delivered helmet-based brain imaging with a three-fold improvement in sensitivity, while new platforms – neural imaging LIFE microscopes and lattice light-sheet microscopy - expanded our ability to observe neuronal and organoid dynamics in 3D.

QUBIC's biological studies of biomolecular condensates, including TDP-43, brought experimental and computational teams together across nodes and themes to probe mechanisms relevant to neurodegenerative disease – an example of QUBIC's centre-wide integration in action.

Seeing and Controlling *the* Molecular Engines of Life

Imagine a future where medical treatments are more responsive, biological systems are easier to control, and disease can be detected earlier and more precisely. Reaching this future depends on understanding how life organises itself at the most fundamental, molecular level and how those processes might be guided or redesigned.

Many of the processes that sustain life occur at time and length scales far beyond what we can see. At the molecular scale, living systems organise themselves dynamically, forming temporary structures that control how cells function, adapt and respond to their environment. Understanding this hidden layer of organisation is essential for developing more effective therapies, diagnostics and biotechnologies.

Biomolecular condensates are emerging as a unifying framework for understanding and eventually shaping this molecular organisation.

Biomolecular condensates are dynamic, membrane-less compartments that form when proteins and nucleic acids self-assemble inside cells. Rather than being enclosed by physical boundaries, these structures arise through collective molecular interactions, allowing cells to concentrate and regulate biological activity with remarkable flexibility.

Biomolecular condensates play a central role in organising life at the molecular level. They help regulate gene expression, coordinate biochemical reactions and enable cells to respond rapidly to change. The same properties that make biomolecular condensates powerful biological tools also place them beyond the reach of many existing techniques.

Condensates are small, highly dynamic and governed by subtle molecular forces. Small changes in their composition or environment can significantly alter their behaviour. In healthy systems, this adaptability is essential. In disease, however, condensates can become disrupted, contributing to conditions such as neurodegeneration and cancer.

Understanding how condensates form and function, and how they might be controlled, requires new ways to measure molecular interactions with exceptional sensitivity.

Where quantum biotechnology enters the picture

Many of the key processes within biomolecular condensates occur at the nanoscale, where classical measurement tools struggle to capture weak and transient interactions. This is precisely the regime where quantum technologies offer new opportunities.

Ultra-sensitive quantum sensors, advanced spectroscopic techniques and quantum-informed simulations provide new ways to probe molecular

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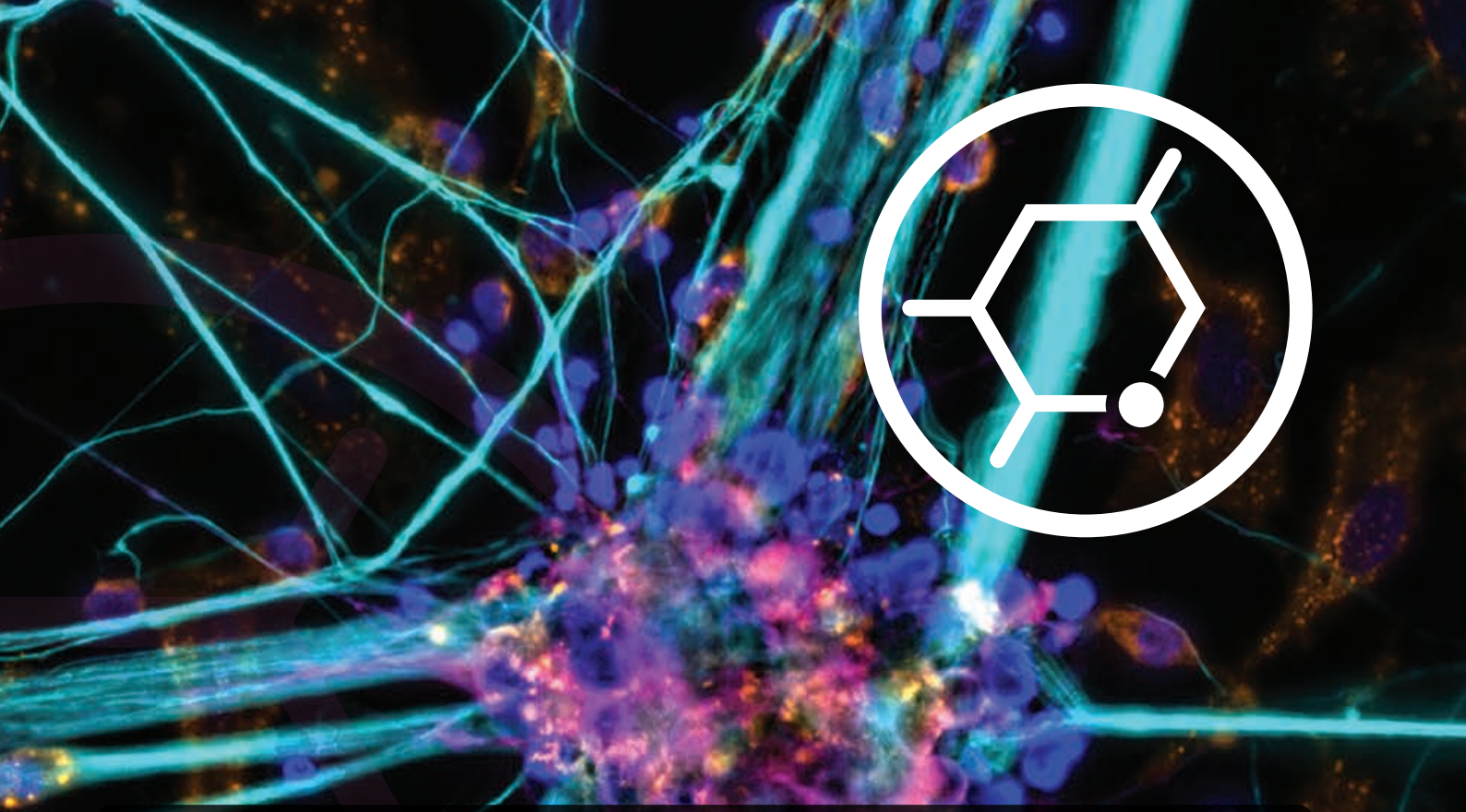

organisation and dynamics. When combined with experimental platforms in molecular and cellular biology, these tools are allowing QUBIC researchers to characterise condensates with unprecedented precision.

QUBIC provides the environment where these capabilities come together, linking quantum science with biological experimentation and theory.

From insight to application

By learning how to control the formation and properties of biomolecular condensates, researchers could design programmable biomaterials with applications across health and biotechnology, including:

- Smarter drug delivery systems that respond dynamically to their environment
- Synthetic bioreactors that organise complex reactions without rigid boundaries
- New diagnostic platforms that exploit condensate sensitivity to molecular change

These possibilities show how quantum biotechnology extends beyond measurement, opening pathways to designing and engineering living matter itself.

A unique capability at the molecular frontier

Biomolecular condensates sit squarely within QUBIC's mission to apply quantum technologies where biological complexity is greatest and new tools are most needed. By uniting researchers across institutions and research themes, the centre connects fundamental molecular insight directly to biological relevance.

This work positions QUBIC to drive future advances in healthcare, diagnostics and biotechnology by revealing how life organises itself at the molecular scale and turning that understanding into capability.

A centre-wide effort across themes

In 2025, researchers from three QUBIC nodes (University of Wollongong, The University of Queensland, and University of Technology Sydney) published a major review in **Advanced Materials:**

> *Biomolecular Condensates as Emerging Biomaterials: Functional Mechanisms and Advances in Computational and Experimental Approaches.*

Spanning the Molecules, Cells and Brain themes, the review integrates expertise in molecular physics, chemistry, biology and computation to examine biomolecular condensates from multiple perspectives. It brings together advances in experimental techniques and computational modelling to reveal the physical principles that govern condensate behaviour, and to explore how these systems could be developed as a new class of functional biomaterials.

This is precisely the kind of problem QUBIC exists to solve, because progress depends on integrating physics, chemistry, biology and computation in ways that individual disciplines, projects or institutions cannot achieve alone.

IMAGING
Heart Disease

QUBIC researchers are applying quantum spectroscopy to reveal molecular signatures of heart disease that remain invisible to conventional techniques, advancing new approaches to earlier diagnosis and improved cardiovascular care.

Heart disease remains one of Australia's leading causes of death, accounting for around 24 per cent of all deaths nationwide and placing a substantial burden on individuals, families and health systems. While clinicians rely on a range of diagnostic tools, many approaches still depend on detecting structural changes in tissue that often appear late in disease progression. There is growing interest in methods that can identify earlier, molecular-level changes, offering clearer insight into disease state and progression.

QUBIC researchers are investigating how quantum technologies could improve our ability to detect and understand heart disease at its earliest stages.

At the University of Technology Sydney (UTS), a multidisciplinary team is exploring the use of quantum-enhanced mid-infrared spectroscopy to distinguish between healthy and diseased heart tissue. Recent work has shown that the technique can detect subtle biochemical differences that are difficult to resolve using conventional diagnostic methods.

Rather than focusing on visible tissue damage, the approach probes molecular signatures associated with cardiac disease. Proteins, lipids and other biomolecules absorb mid-infrared light at characteristic wavelengths, and these signatures change as heart tissue becomes diseased. By harnessing quantum properties of light, we can enhance sensitivity to these changes, enabling more precise identification of disease-related patterns.

"By showing that quantum mid-infrared imaging can identify disease signatures in heart tissue, we've opened a pathway to practical diagnostic tools that could transform cardiovascular care."

Professor Irina Kabakova
QUBIC Chief Investigator
University of Technology Sydney

From measurement to clinical relevance

Cardiovascular disease imposes an estimated $14 billion in annual healthcare costs in Australia, underscoring the importance of improving diagnostic precision.

This work represents an important step along the pathway from quantum measurement to future diagnostic applications, illustrating how quantum-enabled spectroscopy could complement existing cardiac diagnostics by providing information that conventional imaging cannot capture. Earlier and more detailed molecular characterisation of heart disease could, over time, support improved clinical decision-making.

Key translational questions now come into focus: how such techniques might integrate into practical diagnostic platforms; how they perform relative to existing clinical tools; and what technical challenges must be addressed to support use in real-world healthcare settings. Addressing these questions helps define where quantum technologies are most likely to deliver meaningful benefit for cardiovascular medicine.

This research was delivered through the Critical Technology Challenge Program (CTCP), a $36 million initiative under Australia's National Quantum Strategy designed to accelerate the commercialisation of quantum technologies.

The project brings together expertise in quantum optics, spectroscopy, biomedical engineering and cardiovascular health, reflecting the cross-disciplinary approach required to translate quantum science into clinical insight.

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32%
of all deaths are from heart disease
#1
cause of death globally
One Australian dies from heart disease every
12
minutes

SEEING
Dementia Unfold

Dementia: a growing challenge, with limited answers

Dementia is one of Australia's most pressing health challenges, and the second leading cause of death in Australia. Beyond the statistics lies a deeply personal toll on individuals, families, carers and communities.

Work underway at QUBIC is opening a new window into dementia, using quantum sensing to observe brain cells in ways that were not previously possible.

Despite decades of dementia research, there is still no cure. Recently approved medications can slow symptoms for some people, but they are not suitable for everyone. Some require regular MRI scans to monitor serious side effects. While these treatments may slow symptoms for some people, they do not stop or reverse the underlying disease, meaning brain cells continue to be irreversibly lost.

A major challenge in dementia research is understanding how the disease begins and progresses. Scientists typically compare healthy brain cells with diseased ones, looking for differences that might explain why neurons fail and die. However, this approach captures only snapshots of a disease that develops over years or decades, missing how a healthy neuron gradually becomes diseased as damage accumulates. Part of the challenge lies in the limits of existing microscope technology, which offers low-resolution photographs. What's needed is a high-resolution movie, showing how cells change and interact over time.

Growing the human brain in a dish

QUBIC Chief Investigator Professor Lezanne Ooi is working to overcome this barrier. A group leader at the University of Wollongong and Deputy Director of the Molecular Horizons Research Institute, Lezanne leads a research program grounded in cellular neuroscience – the study of how individual brain cells function, communicate and fail.

At the core of her work is a powerful platform technology. Using a small skin sample donated by a patient, Lezanne's team reprograms those cells into stem cells, and then guides them to become human brain cells grown in a dish.

Crucially, these cells are alive, accessible and measurable, opening new possibilities for understanding disease mechanisms and testing potential therapies, without needing to sample a patient's brain tissue.

While dementia is a central focus, Lezanne's work also spans Parkinson's disease, motor neuron disease, epilepsy and other rare brain diseases, as well as emerging questions around genetic and environmental risk factors for neurodegenerative diseases.

Where quantum sensing changes the picture

Advances in quantum sensing are opening new possibilities in biology and medicine, allowing researchers to probe living systems with unprecedented sensitivity.

Quantum sensors are exquisitely sensitive to tiny electrical and magnetic signals — the same signals neurons use to communicate. By integrating quantum sensing with Lezanne's "brain-in-a-dish" platform, scientists can now follow single neurons, in real time, over extended periods. This makes it possible to see how communication between neurons changes, how damage accumulates, and how disease processes unfold over time – something conventional microscopes cannot do.

By making these processes visible, researchers can begin to understand how neurodegeneration starts, which cellular pathways fail first, and why some neurons are more vulnerable than others. This knowledge opens the door to identifying new targets for treatment or testing potential drugs earlier and more accurately.

Dementia serves as a crucial and immediate focus, but the same quantum-enabled tools can extend to other neurodegenerative diseases and broader biological processes, including cancer.

A future shaped by earlier, safer intervention

The long-term vision is transformative. By revealing what goes wrong inside neurons, and when, this work has the potential to accelerate drug discovery, and shift treatment toward earlier, more effective intervention. Over time, it could help move dementia care away from symptom management and toward protecting brain health before irreversible damage occurs.

Through QUBIC, quantum sensing is no longer an abstract promise. It is becoming a practical tool—one that allows scientists to watch the living human brain at work, cell by cell, and bring new clarity to one of society's greatest medical challenges.

"Quantum sensors can detect neuronal signals and molecular-scale changes with extreme sensitivity, measuring subtle changes in neurons and identifying disease-specific molecular fingerprints."

Chief Investigator Prof Lezanne Ooi


Major New
Initiatives

Harnessing Quantum Technologies *Towards Net Zero*

Decarbonisation is one of the defining challenges of our time. Global energy-related CO_2 emissions reached 37.8 gigatonnes in 2024, and air pollution from fossil fuel combustion continues to cause an estimated seven million premature deaths each year worldwide. Reducing emissions is no longer only an environmental imperative, it is a public health, economic and social one.

Meeting net-zero commitments will require faster, deeper innovation across energy, materials and industrial systems. Many of the hardest decarbonisation problems now sit beyond the limits of today's sensing, modelling and optimisation tools. The Queensland Quantum Decarbonisation Alliance (QDA) is a targeted response to that challenge, bringing quantum capability to the places where conventional approaches fall short.

By integrating world-leading quantum science with industry-defined use cases, the QDA is building the knowledge, prototypes and partnerships needed to unlock the next generation of decarbonisation technologies for Queensland and Australia.

A $30 million mission-driven alliance

The Queensland Government and partners committed $30 million to establish the QDA as a mission-driven consortium of 29 research and industry partners, focused on applying quantum sensing and quantum computing to critical decarbonisation challenges.

QUBIC hosts the Alliance, with a Hub that includes the University of Queensland, Griffith University, PsiQuantum and CSIRO. Together, the partners span quantum science, decarbonisation research and carbon-intensive industry including Siemens, Aurizon and Energy Queensland, creating a structure that connects frontier capability with real-world need.

The QDA officially launched at the 2025 Quantum Australia Conference, and was followed by Quantum Meets Decarbonisation with CSIRO and Quantum Australia, a sector-wide forum that brought together research, industry and government to focus on heavy industry, critical minerals, materials innovation and energy-system optimisation, sectors where emissions reductions deliver immediate benefits for both planetary and human health.

This coordinated model ensures that research outputs from sensing prototypes and quantum algorithms to new modelling tools are positioned for rapid testing, industry validation and future commercialisation.

Why quantum, why now?

Some of the most persistent decarbonisation challenges, such as designing improved catalysts and battery materials, or monitoring underground carbon storage, exceed the capabilities of classical computing and sensing technologies.

Quantum approaches open new pathways:

- **Quantum computing** offers the potential to overcome long-standing computational bottlenecks in chemistry and materials science, enabling more accurate simulation and optimisation of systems essential to decarbonisation.
- **Quantum sensing** enables ultra-precise measurements of magnetic and gravitational fields, supporting applications such as critical-minerals exploration, aquifer mapping and carbon-storage monitoring.

These opportunities align directly with Australia's existing industrial strengths, increasing the likelihood that quantum-enabled advances will translate into economic benefit, regional expertise and sovereign capability.

Three priority areas for impact

QDA activity spans three interconnected research themes:

- Green Hydrogen & Agriculture
- Electricity & Batteries
- Resources & Carbon Sequestration

Quantum sensing is expected to deliver near-term impact through field-ready applications, while quantum algorithms will scale into broader use as utility-grade quantum computers emerge. Together, this dual-track approach balances immediate translational outcomes with long-term capability building.

Building quantum capability for a healthier future

Because air pollution remains the world's largest environmental health risk, accelerating decarbonisation is not only a technical challenge, but a societal necessity.

The Queensland Quantum Decarbonisation Alliance positions QUBIC at the forefront of this effort, building capability, fostering industry-aligned innovation, and driving solutions in the sectors most responsible for both carbon emissions and pollution-related illness.

By linking frontier quantum research with the needs of heavy industry, resources, agriculture and energy, the QDA exemplifies QUBIC's commitment to research with purpose: delivering quantum-enabled decarbonisation solutions with real-world impact, at scale.

WORLD FIRST

International Conference on Quantum Technologies in the Life Sciences

GLOBAL ECOSYSTEM

Quantum-Life Sciences

UNDERSTANDING LIFE *at the* Quantum Frontier

Modern health systems face challenges of unprecedented scale and complexity. Despite major advances in biomedical science, the development of new medicines remains slow, costly and uncertain, with many promising drug candidates failing late in development. Improving our ability to image, simulate and understand biological systems at the molecular level is increasingly critical, not only to accelerate drug discovery and deliver more effective diagnostics and therapies, but also to tackle urgent challenges in agriculture, energy and sustainability.

These pressures demand new ways of understanding life itself and new tools capable of sensing, imaging and simulating biological systems at their most fundamental levels. Many of the molecular processes that drive disease operate beyond the reach of today's classical technologies. This is where quantum technologies offer transformational potential.

A world-first moment for a new field

In November 2025, Wollongong became the meeting point for a new global research community, as QUBIC hosted the inaugural International Conference on Quantum Technologies in the Life Sciences (qLIFE). The first conference of its kind, qLIFE was created to do more than showcase research: it set out to build a field.

As a flagship event of the International Year of Quantum Science and Technology, qLIFE positioned Australia at the forefront of a rapidly emerging discipline, one focused on applying quantum tools to the deepest questions in biology, medicine and biotechnology.

Dr Gavin Jones, IBM

Prof Jennifer Dionne, Stanford University

qLIFE brought together quantum physicists, life scientists, clinicians, engineers and industry leaders, the multidisciplinary expertise required to translate quantum science into biological insight and, ultimately, impact. By design, the conference prioritised depth of discussion and long-term collaboration over scale, recognising that breakthrough fields grow through sustained connection.

Seeing, understanding and engineering life differently

Across the program, speakers explored how quantum technologies are reshaping the way scientists study living systems.

Researchers presented advances in quantum sensing and imaging, including diamond-based quantum sensors capable of detecting neural activity, metabolic changes and molecular interactions with unprecedented sensitivity. Others examined how quantum computing and simulation could transform drug discovery and materials design by modelling complex biochemical systems that overwhelm classical computers. A third focus explored quantum-enabled tools for biotechnology and diagnostics, from ultra-high-resolution medical imaging to real-time biosensing and early-warning diagnostics.

Together, these approaches point to a common goal: understanding life at its smallest scales, where new insight can unlock new forms of prevention, diagnosis and treatment.

Global leadership, shared direction

qLIFE featured scientific leadership from across the globe, including Professor Sir Peter Knight, Professor Jennifer Dionne, Professor Miles Padgett and Professor Fedor Jelezko, alongside research and industry leaders from organisations such as IBM, Google, the Novo Nordisk Foundation, PsiQuantum and SandboxAQ, and emerging quantum-biotechnology companies.

Just as importantly, qLIFE strengthened collaboration between the world's leading centres in quantum life

science, including QBioMed (UK), the Centre for Quantum Bioscience (Germany) and NSF QuBBE (USA). For the first time, these partners convened with QUBIC to align scientific priorities and begin shaping a shared research agenda for the decade ahead.

Building trust beyond the laboratory

A central element of qLIFE was its commitment to public engagement. Public lectures delivered by Professor Jennifer Dionne and Professor Sir Peter Knight translated cutting-edge quantum science for a broad audience, exploring how quantum technologies can decode ocean chemistry, map brain function, detect disease earlier and improve environmental health.

The lectures reflected a significant aspect of qLIFE's broader purpose: building public understanding and trust as quantum technologies move from the laboratory into society.

Why qLIFE matters

qLIFE is a platform for long-term impact. By convening global leaders annually, qLIFE accelerates the translation of quantum discovery into clinical and industrial application. By formalising a new research community, it ensures Australia plays a central, sustained role in a field of growing global importance. By engaging students, and early and mid-career researchers, it helps build the next generation of quantum-life science leaders.

Most importantly, qLIFE focuses quantum capability on the world's most complex biological and health challenges where deeper understanding can lead to lasting change.

By bringing the global quantum-life science community together in Wollongong, qLIFE set the trajectory for a new decade of discovery, collaboration and impact, and affirmed Australia's role in shaping how quantum technologies help us better understand life itself.

"Quantum technologies are set to transform the life sciences impacting health, medical technologies, sustainability and energy. qLIFE brought together the quantum technologists, bioscientists, engineers and industry needed to fuel this transformation."

Professor Warwick Bowen
Director, QUBIC

International Conference on Quantum Technologies in the Life Sciences

Applying Quantum *to the* Brain Frontier

New CI Professor Marta Garrido brings expertise and infrastructure to enable next-generation quantum-enabled brain measurement

The appointment of Professor Marta Garrido to QUBIC in 2025 marks a significant step in expanding the Centre's multidisciplinary capability and strengthening its leadership in quantum-enabled biotechnology.

Her expertise in neuroscience and computational modelling brings new capability at the intersection of physics, engineering and biological research, supporting QUBIC's future work in quantum-enabled human brain imaging.

Professor Garrido's research combines brain imaging techniques and computational modelling to understand how the brain learns from experience and makes decisions in both typical individuals and people with psychiatric disorders. Her work uses methods including magnetoencephalography (MEG), electroencephalography (EEG), and magnetic resonance imaging (MRI) to study brain activity and neural circuitry. This research focuses on understanding the biological basis of brain function and psychiatric conditions, including disrupted predictive processes and brain circuitry.

Professor Garrido significantly expands QUBIC's capability in magnetoencephalography.

She brings more than twenty years of experience in MEG data acquisition, analysis and brain connectivity modelling. In 2024, she established the first purpose-built whole-head, room-temperature MEG facility in the southern hemisphere at the University of Melbourne through an ARC LIEF grant. The facility uses wearable optically pumped magnetometers (OPMs) – 50 highly sensitive quantum magnetic field detectors – to measure extremely weak magnetic signals generated by brain activity. These sensors can be positioned flexibly on the head and allow recordings during more 'natural' experimental conditions where people can freely move.

This facility provides infrastructure to support QUBIC's research in quantum-enabled neural imaging. In 2025, the University of Queensland also committed $1.6M to establish an R&D facility for quantum MEG. These two facilities combined means QUBIC has the southern hemisphere's only room-temperature MEG facilities. Professor Garrido's work contributes to informing the development of quantum sensors for MEG, benchmarking emerging sensing technologies including rubidium, diamond and optomechanical systems, and validating new approaches to non-invasive brain measurement. Her expertise in MEG data acquisition and analysis supports the development and testing of sensing technologies under development within QUBIC and contributes to research on brain connectivity and neural activity.

Her appointment also supports collaboration across QUBIC nodes. Project funding associated with this work enables the appointment of a postdoctoral research fellow in whole-brain MEG and will support MEG research at the University of Melbourne, University of Wollongong and The University of Queensland. Professor Garrido also brings experience in mentoring researchers, supporting training and development programs, established industry connections, and from 2026 will lead the QUBIC's Outreach & Engagement portfolio.

Professor Garrido's appointment strengthens QUBIC's capacity to integrate quantum sensing technologies with biological and clinical research, expanding the Centre's multidisciplinary capability and supporting collaboration across its research nodes. By contributing new infrastructure, technical expertise and research networks, her appointment enhances QUBIC's ability to develop and apply quantum technologies for brain measurement and builds the foundation for future research and partnerships.

"My MEG research is strongly aligned with QUBIC's mission to develop novel quantum technologies that can reduce some of the constraints on conventional MEG."

Chief Investigator Prof Marta Garrido

Multi-disciplinary Science

INTEGRATING DISCIPLINES *to* Drive Frontier Discovery

A new talent pipeline is essential if Australia is to secure its share of the projected $1.3 billion in economic value from quantum biotechnology.

Quantum biotechnology demands a new kind of science and a new kind of workforce, with advances coming from researchers who can work fluently across quantum physics, biology, engineering and medicine — skills that must be cultivated deliberately. Building this interdisciplinary capability requires a purpose-designed talent pipeline, one that we are actively shaping through our training and collaboration model to deliver frontier discovery and enable future economic and societal value for Australia.

In 2025, we delivered six programs deliberately designed to train our workforce in interdisciplinary practice, enabling our people to work confidently across disciplines, build shared scientific language and collaborate effectively across nodes.

- The QUBIC Connect Initiative seeded cross-node collaborations and interdisciplinary problem-solving, with 13 researchers visiting other nodes to advance quantum biotechnology.
- The QUBIC Annual Symposium and Seminar Series reinforced a shared research culture by showcasing frontier work, with 50 talks from across the Centre spanning physics, biology and biotechnology.
- The qLIFE Conference connected our researchers with leading national and international perspectives across quantum and the life sciences.
- The first Joint Themes Workshop enabled focused cross-disciplinary research planning.
- EMCR-for-EMCR sessions strengthened interdisciplinary literacy through peer-led exchange and collaboration.

Collectively, these activities engaged hundreds of our members across all nodes, spanning all career stages. This sustained investment in interdisciplinary capability directly supported new cross-node publications, collaborative grant successes and the co-development of major research platforms. By embedding interdisciplinary training into our core program, QUBIC is accelerating frontier discovery while building the workforce required to deliver the long-term impact of quantum biotechnology.

SEEDING INTERDISCIPLINARY INNOVATION THROUGH THE QUBIC CONNECT INITIATIVE

DR MARITA RODRIGUEZ (UQ–UoW–UoM)

Strengthening equitable authorship practices is essential for effective interdisciplinary collaboration. The project enables QUBIC to build fair, transparent research culture across teams.

DR SERGEY KRUK (UTS–UQ–UoM)

Advancing nanophotonics is key to unlocking higher-precision biological measurements. His work delivers 10× gains in optical tweezer sensitivity and 100× improvements in NV-centre performance, accelerating quantum bioimaging and sensing.

DR BENJAMIN CAREY (UQ–UoW)

Measuring forces in single cells is critical for understanding disease mechanisms. This project establishes a chip-scale platform for live single-cell force readouts, opening pathways to quantum-enabled diagnostics and neuromuscular models.

Advancing Quantum Biotechnology THROUGH COLLABORATION

Turning connection into capability

In 2025, we held our annual Themes Workshop in Katoomba with 60 researchers for three days designed to accelerate multidisciplinary capability. In the International Year of Quantum, the workshop reaffirmed that quantum biotechnology breakthroughs emerge when diverse disciplines come together with purpose.

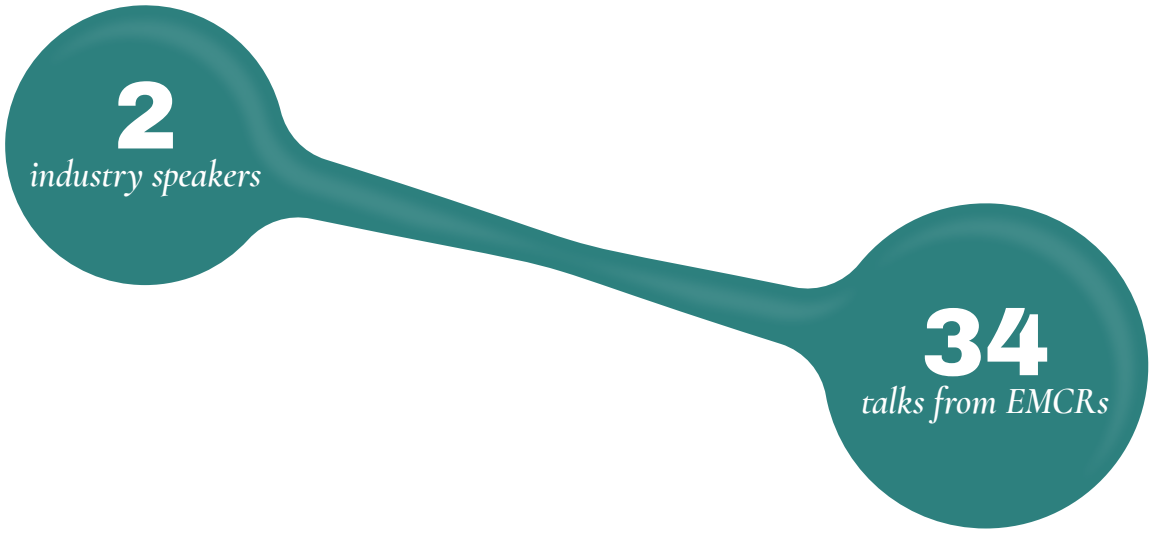
The program brought together our three research themes – Molecules, Cells and Brain – into a single collaborative environment to tackle the same challenge: understanding and manipulating biological systems with quantum-enabled precision.

The workshop created the conditions for high-value scientific exchange. A quantum physicist working on nanoscale sensing could test assumptions with a biologist modelling cellular processes. The team in quantum-enhanced microscopy explored real biological use-cases directly with neuroscientists wrestling with complex imaging data. These conversations brought up new questions, clarified shared technical obstacles, and identified opportunities for joint experiments, outcomes that simply do not emerge in siloed research settings.

Early and mid-career researchers played a central role in the workshop, presenting to colleagues outside their discipline, which strengthened their communication skills and sharpened their understanding of how their expertise contributes to QUBIC's broader mission. Building this depth and versatility in the next generation is essential for Australia's long-term capability in quantum biotechnology.

Industry speakers added a critical perspective on translation and impact. Fernando Alves (Quantum Australia) and Dr Mark Waller (Pending AI) highlighted emerging commercial pathways, AI driven molecular discovery, and opportunities for strategic partnerships across sectors. Their insights reinforced the importance of embedding real-world considerations into fundamental research from the start.

The Themes Workshop demonstrates QUBIC's approach to capability building: structured, purposeful collaboration that links measurement to modelling, theory to experiment, and discovery to real applications in health and biotechnology. As the Centre grows, this model remains central to how we accelerate scientific progress and position Australia at the forefront of quantum biotechnology.



Themes Workshop 2025 | Katoomba, NSW

2025 THEMES WORKSHOP: KEY OUTCOMES

Cross disciplinary integration

- Researchers from all nodes engaged in a unified Molecules–Cells–Brain program, strengthening the links between quantum sensing, cellular imaging and neurotechnology.
- Identified shared technical challenges that span biological scales, including signal sensitivity, measurement dynamics and complex data interpretation.

New collaborations formed

- Multiple cross-node research links established, supporting capability growth across QUBIC rather than within isolated projects.
- Stronger connections made between theory, modelling and experiment.

Strengthened early career capability

- HDRs and ECRs gained experience presenting across disciplines, improving communication skills essential for quantum–biology research.
- Expanded peer networks and collaboration prospects.

Industry and translation insight

- Industry session highlighted commercialisation pathways, AI driven molecular design and opportunities for partnership.
- Reinforced the need to align fundamental research with future applications in diagnostics, imaging and advanced manufacturing.

Centre-wide coherence

- Clearer alignment of approaches and goals across nodes and themes.
- Reinforced QUBIC's identity as an integrated national centre building shared capability.

Building Australia's Next Generation *of* Quantum Biotechnology Leaders

Developing capability in quantum biotechnology requires more than technical excellence, it requires researchers who can work confidently across nodes, disciplines and scientific cultures.

This is exemplified in Emma De Costa, a PhD student at the University of Wollongong, who in her first 12 months with QUBIC has become an outstanding example of someone accelerating cross-node and cross-disciplinary collaboration.

Emma's research focuses on TDP-43, a protein strongly linked to Amyotrophic Lateral Sclerosis (ALS). She is investigating how disease-associated and structure-linked mutations influence TDP-43 aggregation kinetics and phase-separation behaviour. Enabled by the QUBIC Connect Initiative, she combines novel quantum tools with advanced techniques such as Brillouin light-scattering microscopy, enabling measurements that are not possible using traditional biophysical approaches.

Emma was the inaugural recipient of the QUBIC Cross-Node Collaboration Award, recognising her leadership in building meaningful connections across teams at the **University of Wollongong,** the **University of Technology Sydney** and **The University of Queensland.** Her approach is grounded in open communication, strategic coordination and the belief that progress in quantum biotechnology depends on aligning complementary strengths.

Her ongoing work on TDP-43 exemplifies this multidisciplinary mindset. Emma has helped connect three distinct research efforts:

- Optical and Brillouin microscopy in Irina Kabakova's and Hadi Mahmodi's groups at UTS

- Optical tweezers experiments in Warwick Bowen's lab with Jackson Lucas at UQ
- Quantum-limited LIFE microscopy with Marino Lara in Warwick Bowen's lab at UQ.

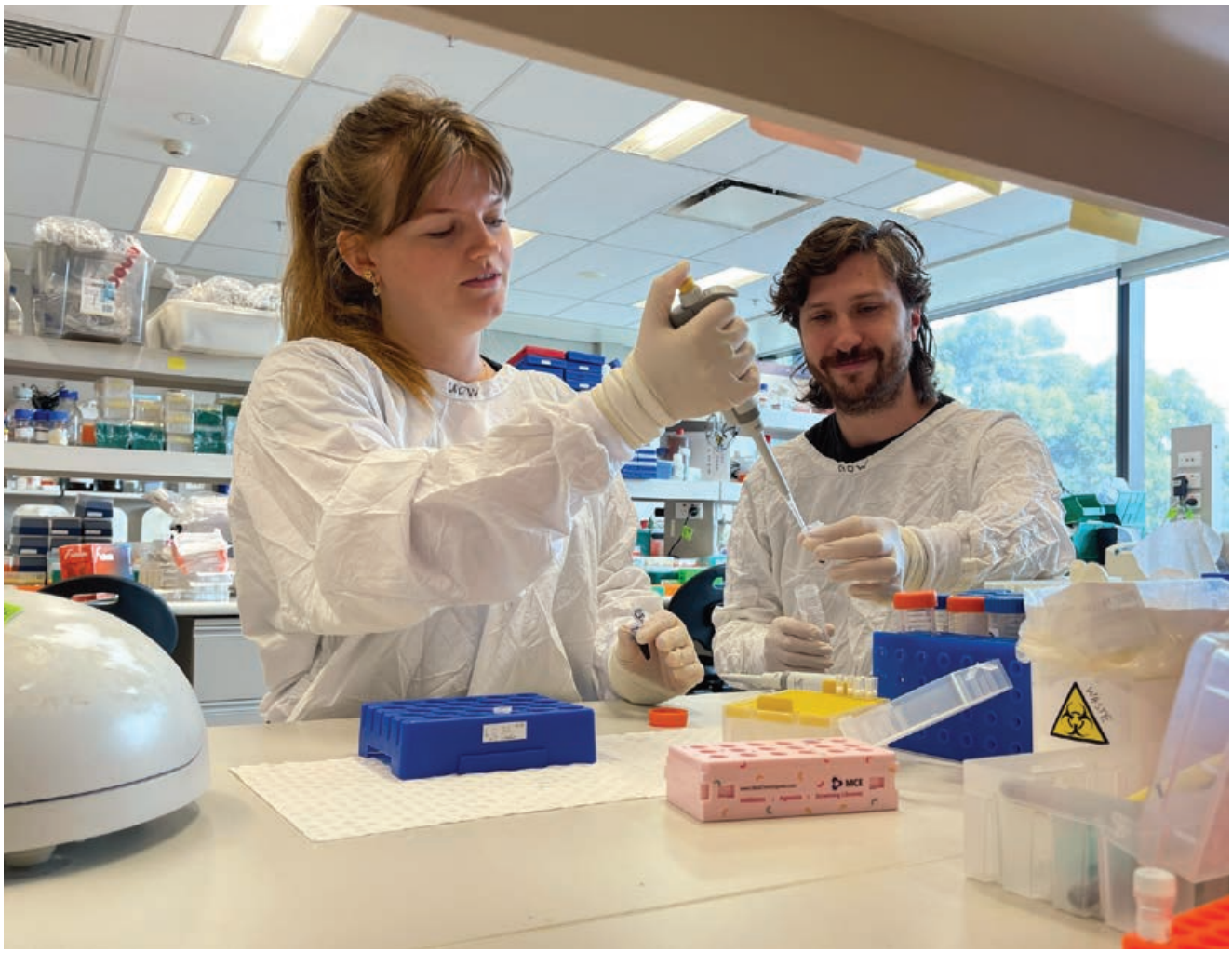
By linking these capabilities, Emma has accelerated new approaches to measuring and understanding TDP-43 – methods that draw on quantum sensing, photonics, biophysics and molecular biology. These insights simply would not emerge within a single lab or discipline. Her work demonstrates QUBIC's mission in action: multidisciplinary science driving innovation in biological measurement.

Beyond the lab, Emma contributes to capability building at a Centre-wide level as Co-Chair of QUBIC's Early and Mid-Career Researcher Committee, helping shape programs that support emerging researchers and foster a collaborative research culture.

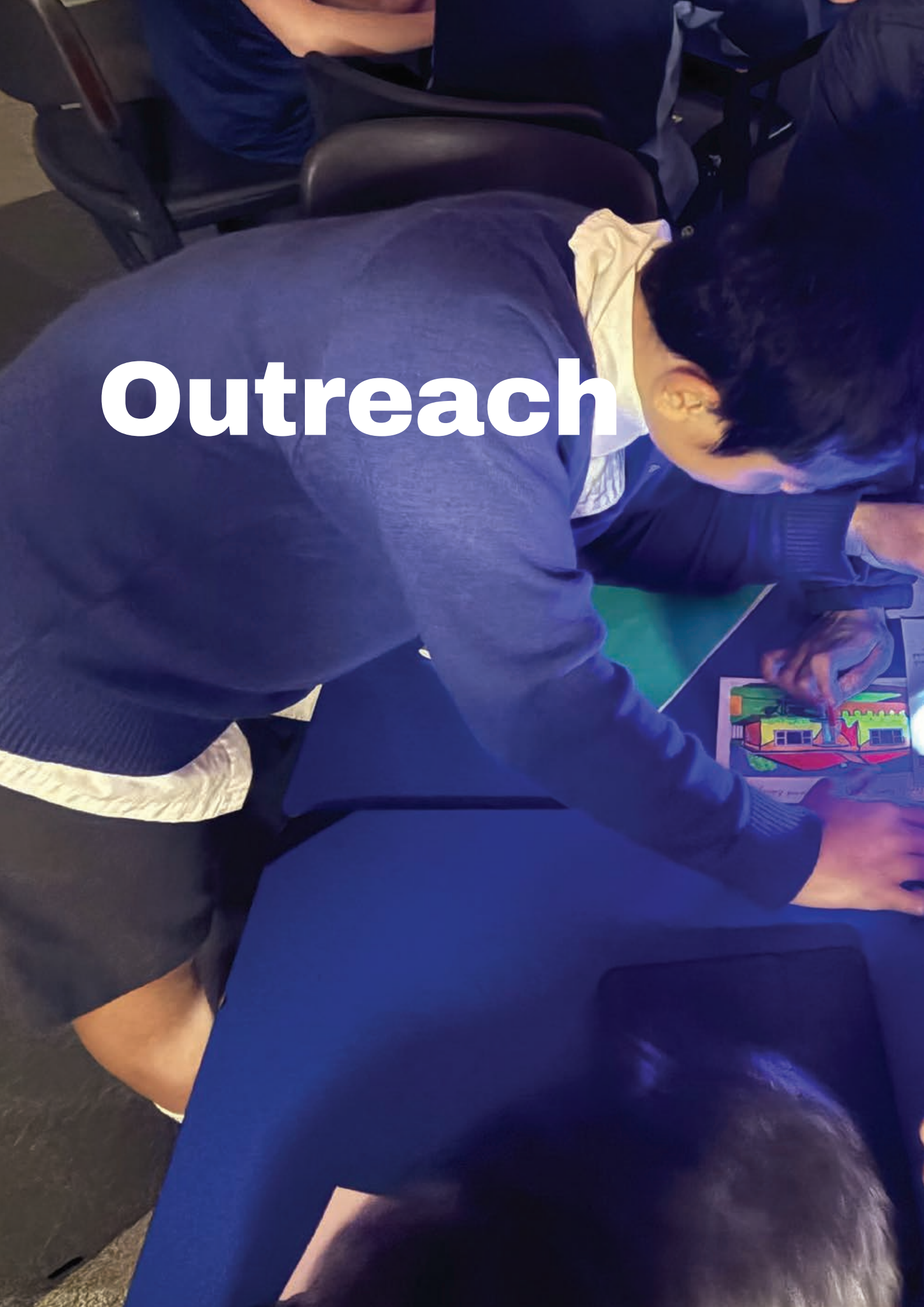
Emma's achievements reflect the strength of QUBIC's training environment and the importance of investing in researchers who can navigate and integrate diverse scientific perspectives. Her leadership, curiosity and commitment to shared progress make her a powerful example of the talent advancing quantum biotechnology in Australia.

"Traditional biophysical methods often lack the sensitivity and resolution to capture real-time processes. By collaborating across QUBIC teams, we're using quantum sensing techniques and Brillouin light-scattering microscopy to overcome these challenges. This will help us understand how specific mutations affect TDP-43 dysfunction and contribute to neurodegenerative diseases."

Emma De Costa
PhD Student, University of Wollongong



Emma De Costa with Dr Thomas Walker in the lab



Outreach

Making Quantum Biotechnology Relatable & Relevant

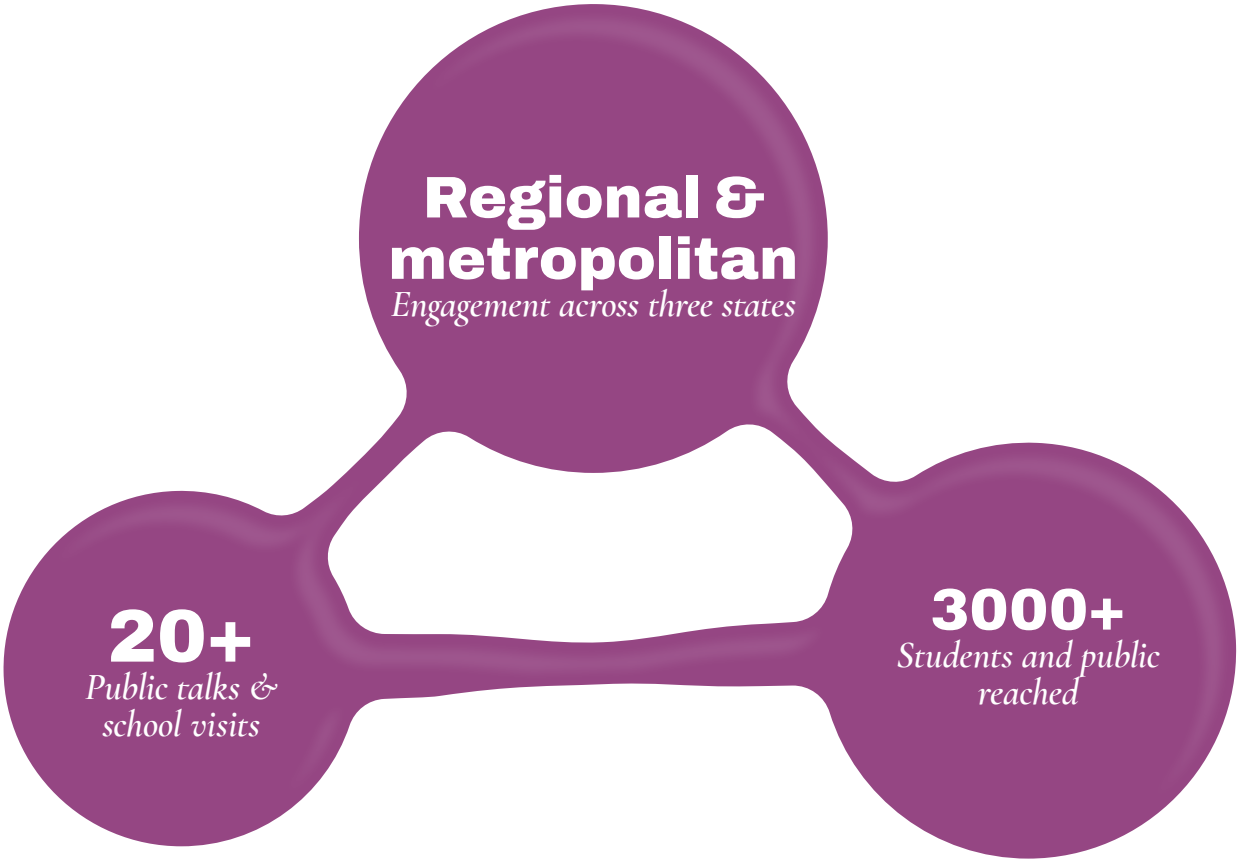
QUBIC's outreach program is driven by a belief that curiosity is the foundation of future capability. Quantum biotechnology is an emerging area that most students, teachers and community members have never encountered before, and outreach gives us the chance to introduce it in ways that are engaging, welcoming and accessible. By sharing the ideas, tools and questions shaping the field through school visits, hands-on demonstrations and public talks, we invite people to explore how quantum science and the life sciences come together, and why this matters for the challenges Australia will face in the decades ahead.

Bringing science to life through real connections

In 2025, the International Year of Quantum Science and Technology, QUBIC ran over 30 public engagement initiatives, reaching audiences across the country through talks, festivals, school programs and interactive demonstrations. These activities were designed to make quantum biotechnology tangible and relatable, showing how technologies like quantum sensing and advanced imaging can reveal the mechanics of life, and showcasing QUBIC's interdisciplinarity in action – physicists, biologists and neuroscientists collaborating to solve shared challenges. By meeting people where they are, and showing our people in action, we aim to build trust and understanding in a field that is technically sophisticated but deeply human in its applications.

Growing a future community of thinkers, makers and problem-solvers

Outreach is also about how we cultivate the next generation of interdisciplinary talent. Each school visit, careers event and public talk helps young people picture themselves in fields that span physics, biology, engineering and computation. Many of the students we meet have never heard of quantum biotechnology, yet they leave with questions, excitement and new possibilities in mind. This work broadens participation, strengthens Australia's STEM pipeline, and ensures that the future of quantum biotech is shaped by a diverse, curious and capable community.



A/Prof Liz Hinde at Melton Secondary College delivering a session on fluorescence and spectroscopy using ultraviolet photons

Inspiring the Next Generation *of* QUANTUM THINKERS

In August, we expanded our regional and metropolitan outreach through a major engagement at the Your Quantum Future Student Conference, hosted by the ACT Education Directorate's Academy of Future Skills. The program brought together over 100 Year 10-12 students from across 15 Canberra schools to learn how quantum technologies will shape future careers and industries, providing hands-on exposure to emerging fields and access to national experts. The event offered a valuable opportunity to introduce quantum biotechnology to students and teachers, and to demonstrate how quantum science and the life sciences are converging to address major challenges.

Three QUBIC researchers delivered sessions that made quantum biotechnology both accessible and ambitious. Students and teachers explored how quantum microscopy using squeezed light is advancing imaging, how nitrogen-vacancy diamond sensors can detect early molecular changes in neurodegenerative diseases such as motor neuron disease, and how quantum sensing can be applied in areas like sport and health diagnostics. Dr Pavlina Naydenova and Dr Dzung Do-Ha shared their own pathways into quantum biotechnology. They entered from neuroscience and biology, not quantum physics, which showed students that this is a domain open to multiple disciplines and backgrounds.

The conference also strengthened our connections across the national landscape. We engaged with ACT science educators, Questacon, Quantum Australia, and colleagues working to build quantum capability across schools and training programs. The keynote by Australia's former Chief Scientist Dr Cathy Foley, who spoke about Australia's leadership in quantum research and the importance of preparing young people for emerging technologies, reinforced the significance of this work. The engagement continues to generate new opportunities, from discussions about future school visits to explorations of deeper collaboration with ACT educators and national partners.

This outreach activity allowed QUBIC to extend its impact beyond its node locations, engaging regional audiences and demonstrating the breadth, relevance and accessibility of quantum biotechnology. It showcased the Centre's commitment to sparking curiosity, supporting educators, and building long-term capability in an emerging field that will increasingly shape Australia's scientific and technological future.

YOUR QUANTUM FUTURE PRESENTERS

DR DZUNG DO-HA
UNIVERSITY OF WOLLONGONG

DR PAVLINA NAYDENOVA
THE UNIVERSITY OF QUEENSLAND

DR SERGEY KRUK
UNIVERSITY OF TECHNOLOGY SYDNEY

Dr Pavlina Naydenova

Dr Sergey Kruk

Mentoring, Training & Development

CULTIVATING TALENT *to Drive Australia's* Quantum Biotechnology Future

As a Centre of Excellence, our responsibility extends beyond delivering world-class research. We must also cultivate the next generation of scientists and innovators who will carry frontier quantum biotechnology forward. Mentoring, training and development are therefore core to our mission. They ensure that the specialised knowledge, methods and capabilities we build do not remain isolated in individual labs or disciplines, but instead grow into a shared national asset. By investing deeply in people, we strengthen Australia's long-term capacity to lead at the intersection of quantum science, engineering and biotechnology.

Within QUBIC, we undertake mentoring, training and development because they are the most powerful levers we have to build capability at scale. Our research spans physics, chemistry, biology, and clinical application, fields that traditionally evolve separately. Supporting our students, and early and mid-career researchers with targeted training helps them develop the cross-disciplinary fluency that modern quantum biotechnology demands. Through structured mentorship from senior researchers, hands-on workshops, and technical training across our nodes, we ensure our people acquire not only deep scientific skill but also leadership, collaboration and communication strengths that are critical for impact.

These efforts are fundamental to QUBIC's commitment to building national capacity. By training up our people in advanced quantum sensing, biotechnological methods, device fabrication, data science and translation pathways, we are creating a cohort uniquely equipped to drive Australia's future industries. Our mentoring programs foster confidence, creativity and resilience, enabling emerging researchers to develop new techniques, pioneer new applications and engage productively with partners across academia, government and industry. In doing so, QUBIC is not only advancing today's research frontier, but preparing the skilled workforce that will establish Australia as a global leader in quantum-enabled biotechnology.

QUBIC's **Mentoring, Training & Development Portfolio** were awarded the inaugural QUBIC Excellence Award for **Outstanding Team Project** for delivering exceptional initiatives in 2025 including QUBIC's flagship programs – Winter School, UG Summer Internship, and mentoring opportunities that strengthened QUBIC's culture and amplified its impact.

5
Inaugural UG summer interns

15
3MT presentations &
64
EMCR poster presentations at QUBIC Symposium

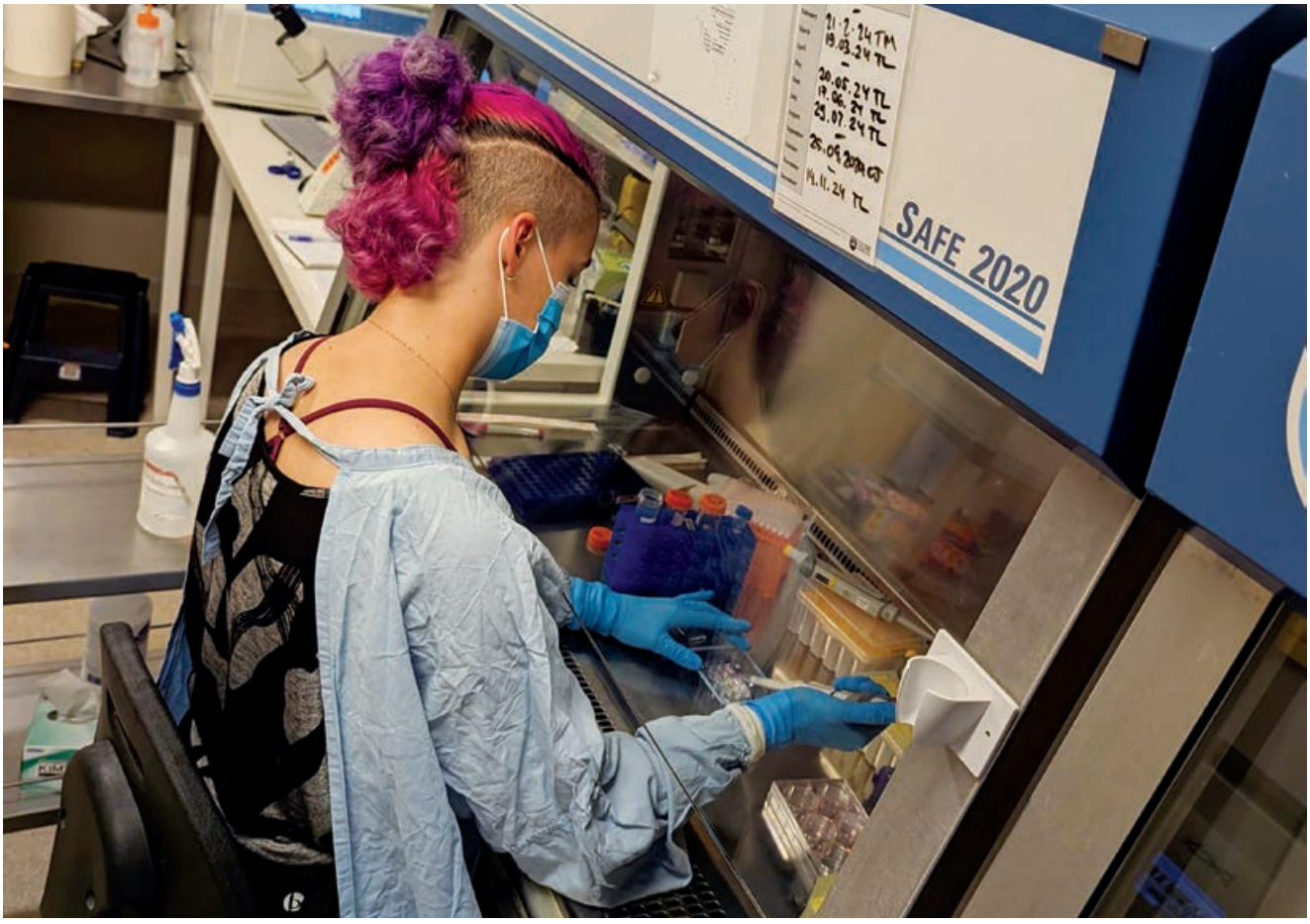
8
Expert-led sessions and 60 attendees at QUBIC Winter School

Inspiring the Next Generation: Inaugural Undergraduate Internship Ignites Future Talent

QUBIC is heavily invested in the next generation of Australian talent. Students who will carry quantum biotechnology into future health, environmental and industrial applications. We're building national capability by training our people, empowering early-career scientists, and opening pathways into a field poised to transform Australia's research and innovation landscape.

Our inaugural Undergraduate Summer Internship Program marked a significant milestone in our commitment to building national capability in quantum biotechnology. Delivered by the Centre's Mentoring, Training and Development Portfolio, the four-week program offered five domestic undergraduate students a unique opportunity to gain hands-on experience at the interface of quantum science and biotechnology. Hosted across four nodes – The University of Melbourne, University of Wollongong, The University of Queensland, and University of Technology Sydney – interns worked alongside leading researchers on real projects with real outcomes. The program culminated in an inspiring series of final presentations, where students demonstrated both their technical achievements and the rapid growth in their confidence as emerging scientists.

The projects illustrate the diversity and interdisciplinary strength of QUBIC's research. At the University of Technology Sydney, Alex Wright worked with Prof Jiajia Zhou on detecting and quantifying Amyloid-β biomarkers for Alzheimer's Disease in plasma, an experience that highlighted the precision required in laboratory work and the value of optimising protocols.



Laz Ashcroft in the lab

At the University of Wollongong, Laz Ashcroft joined Professor Lezanne Ooi and Dr Dzung Do-Ha to analyse neuronal function using novel quantum tools, gaining autonomy in experiment design and building skills in cell culture, assays and data analysis. Other interns contributed to equally impactful areas including public engagement research, molecular dynamics simulations of protein structure and developing low-cost quantum measurement platforms. The projects reflected QUBIC's national breadth and the interns' enthusiasm for tackling frontier challenges.

"Seeing students grasp cutting-edge concepts, develop practical skills, and contribute new perspectives was genuinely inspiring. The success of the program underscores the vital role that structured mentoring and hands-on training play in developing a skilled, confident and diverse pipeline of future researchers."

Dr Dzung Do-Ha,
Program Coordinator, University of Wollongong

INTERNS AND PROJECTS

Anthea Sun, UQ – The challenges in public engagement with quantum technology (A/Prof Allison Fish)

Alex Wright, UTS – The detection and quantification of Amyloid-ß biomarkers for Alzheimer's Disease in plasma (Prof Jiajia Zhou)

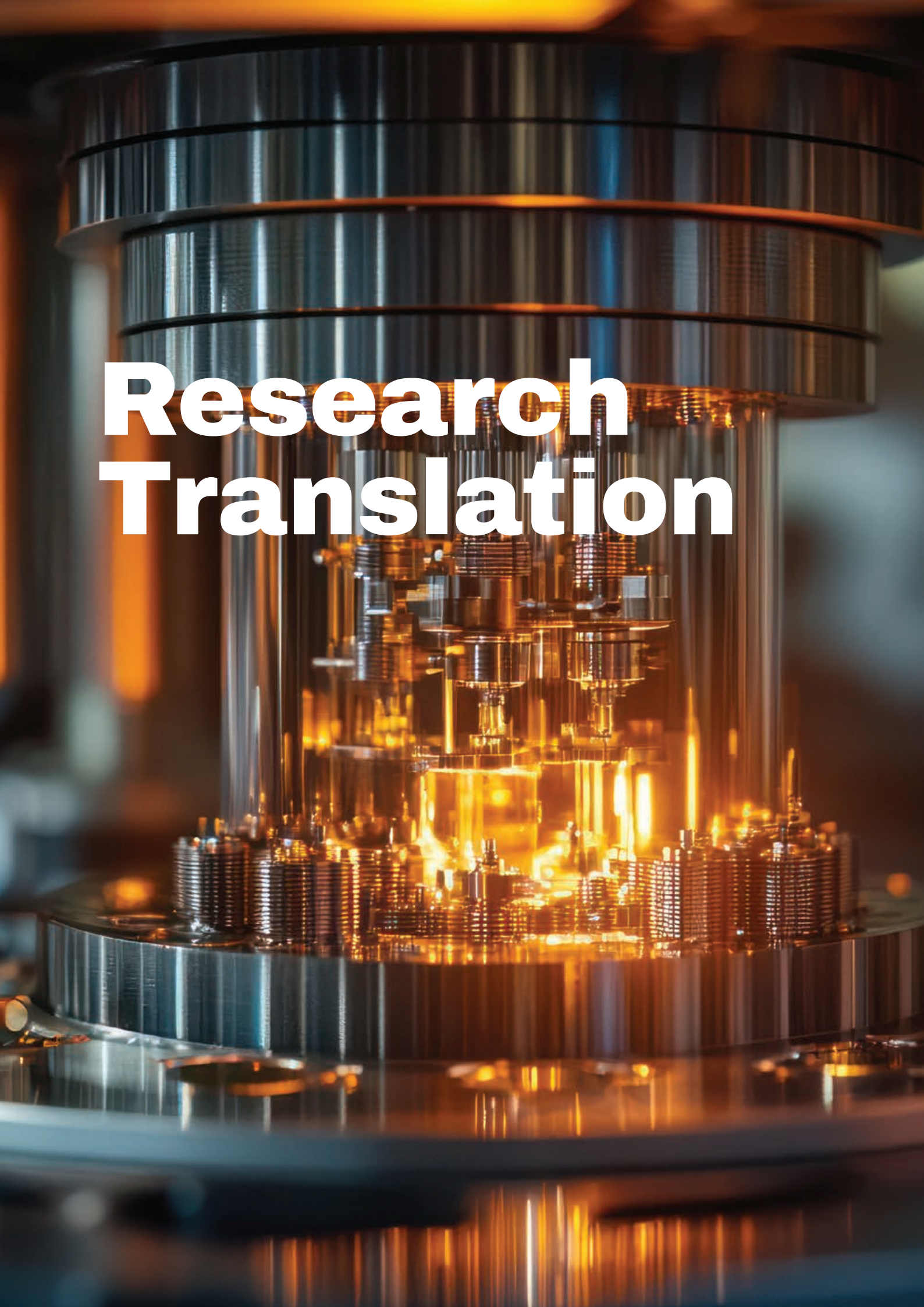
Laz Ashcroft, UoW – Analysis of neuronal function using novel quantum tools (Prof Lezanne Ooi and Dr Dzung Do-Ha)

Nicholas Fantham, UoW – Molecular dynamics simulations of the secondary structure propensities of the conserved region in TDP-43 (Prof Haibo Yu)

Lianne Lay, UoM – Cheap and flexible quantum measurement platforms for spin relaxation measurements of defect centres in nanodiamond (A/Prof David Simpson)

"This internship was a fantastic experience. It has given me a taste of culturing cells, running assays, and analysing results. It boosted my confidence as a scientist, especially with the autonomy to plan and execute experiments. I also enjoyed learning to use GraphPad Prism and improving my presentation skills with feedback from my supervisors. Overall, it was a rewarding and empowering journey."

Laz Ashcroft,
Bachelor of Medical Biotechnology,
University of Wollongong



Research Translation

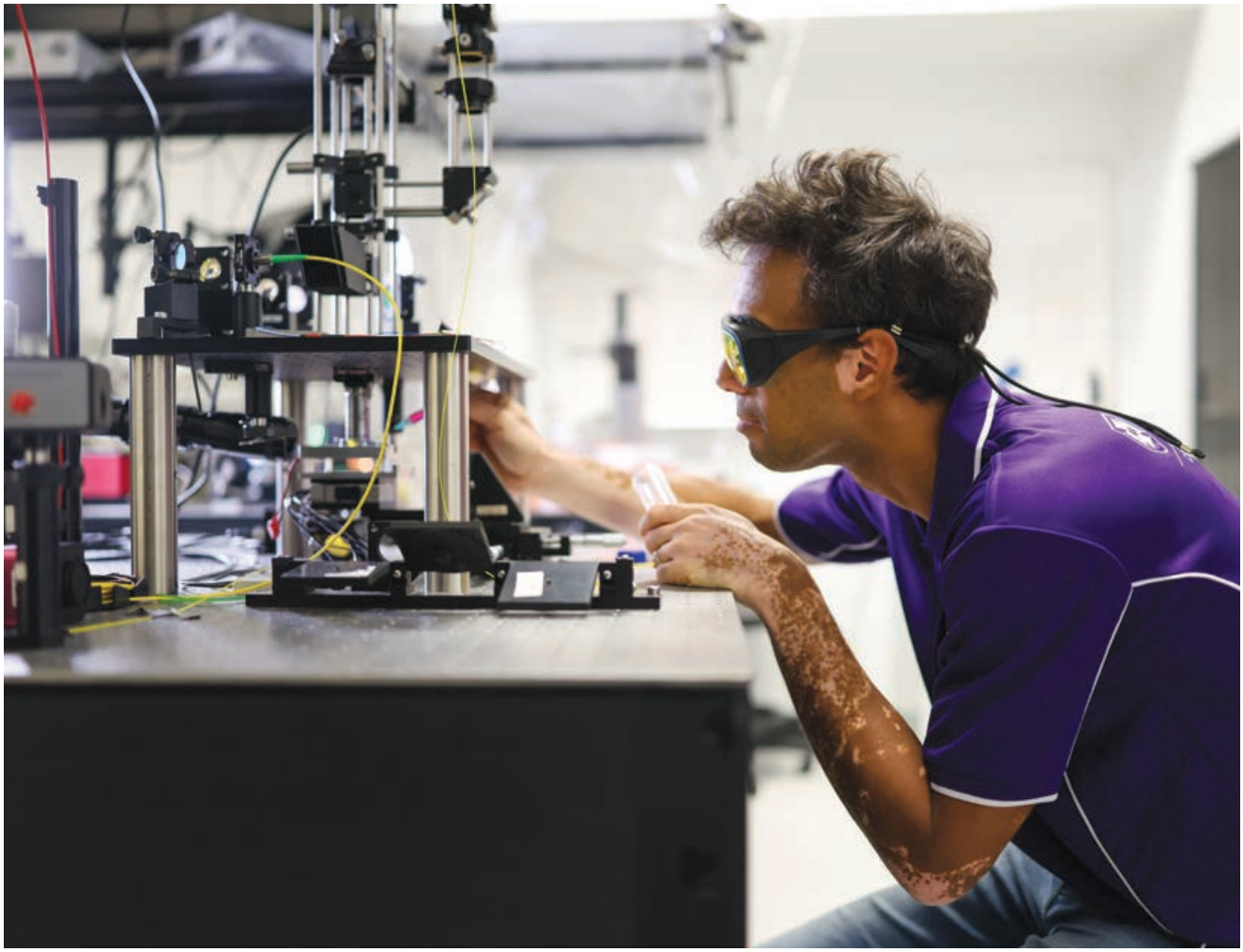
Integrating Translation *across the* Research Cycle

Research translation is central to QUBIC's mission to deliver real-world benefits from quantum biotechnology. The Centre works at the intersection of quantum science and the life sciences, where pathways from discovery to impact are often long, non-linear, and uncertain. Translation at QUBIC is therefore embedded across the research lifecycle, rather than treated as a final step once research is complete.

QUBIC supports researchers to explore how their work could be applied beyond the laboratory, including through early feasibility testing, industry engagement, and informed go or no-go decisions. This approach recognises that not all projects will lead to commercial outcomes, but that early translational insight is critical for identifying where quantum technologies can realistically deliver societal, environmental, or economic value.

Through our Research Translation Program, QUBIC provides funding, fellowships, learning opportunities, and access to external expertise to help researchers build translation capability and progress promising opportunities.

The case study that follows illustrates how this approach can translate quantum research into tools with direct relevance for industry and healthcare.



Dr Nicolas Mauranyapin used QUBIC Research Translation Program funding in 2025 to advance an optics-based project supporting honeybee health and productivity. Building on field trials and quantum-enabled sensing approaches, this work has strong potential to benefit Australia's agricultural sector by supporting pollination and improving crop yields.

Building SCALABLE NEURAL IMAGING TOOLS *for Drug Discovery*

Neurological disorders remain among the most difficult conditions to treat, with the vast majority of new drug candidates failing in clinical trials. A key driver of these high failure rates is the lack of tools that can reliably measure how neurons communicate across networks, which limits the ability of researchers and drug developers to assess whether a potential therapy will actually lead to positive outcomes in the human brain.

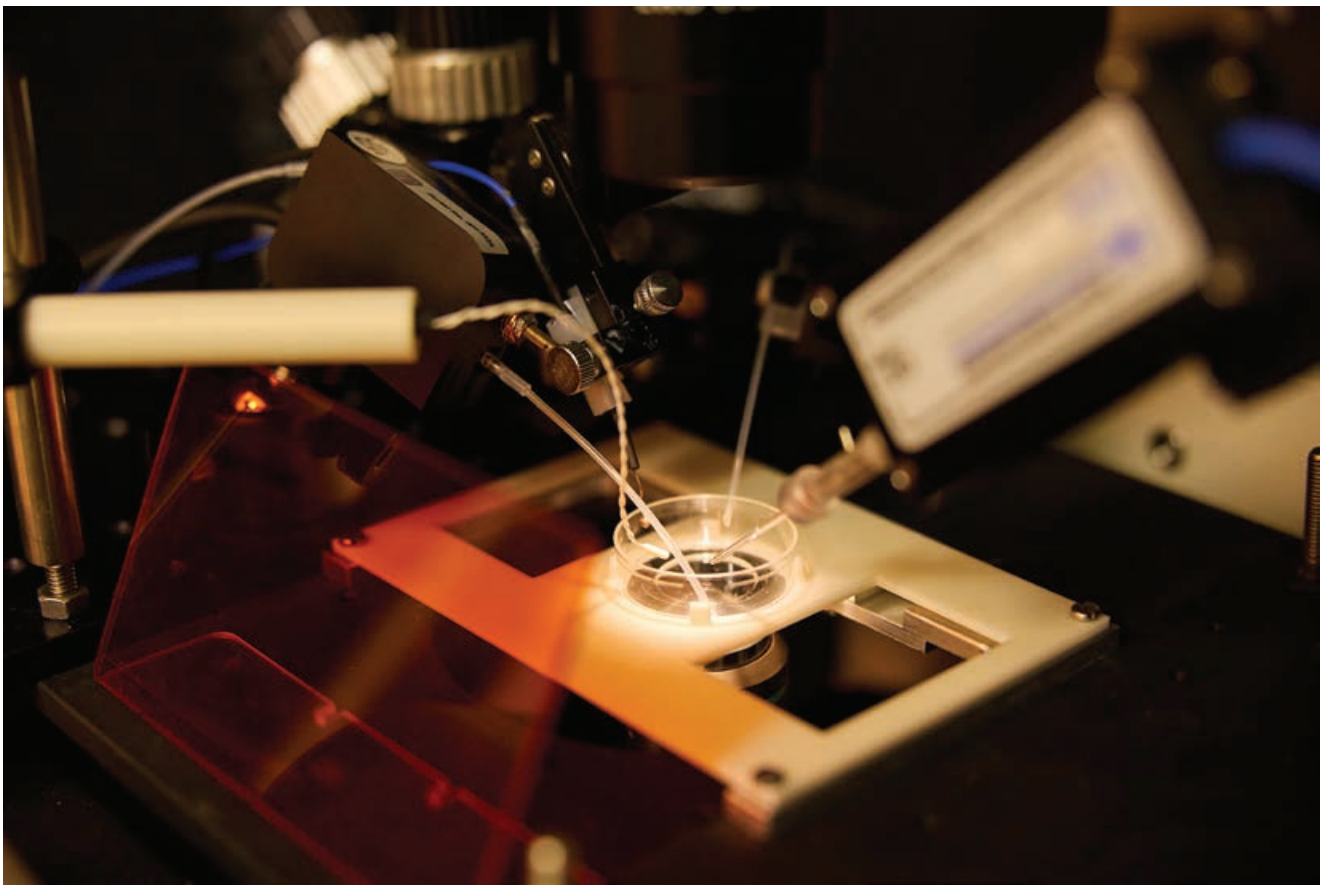
By enabling scalable, label-free measurements of neuronal network activity, this work addresses a critical bottleneck in neurological drug discovery, where most candidates fail due to poor prediction of human brain responses.

Chromos Labs, based out of the University of Melbourne, is translating advances in quantum sensing into a new approach for measuring neuronal activity designed to fit within real drug discovery workflows. The company is developing a 'neural camera' that uses quantum defects in diamond to visualise the electrical signals of human neurons.

The technique is non-invasive and label-free, yet capable of tracking fast voltage changes across large networks of cells with sub-cellular imaging resolution, offering a way to access insight that is difficult to achieve with existing electrode-based or optical methods.

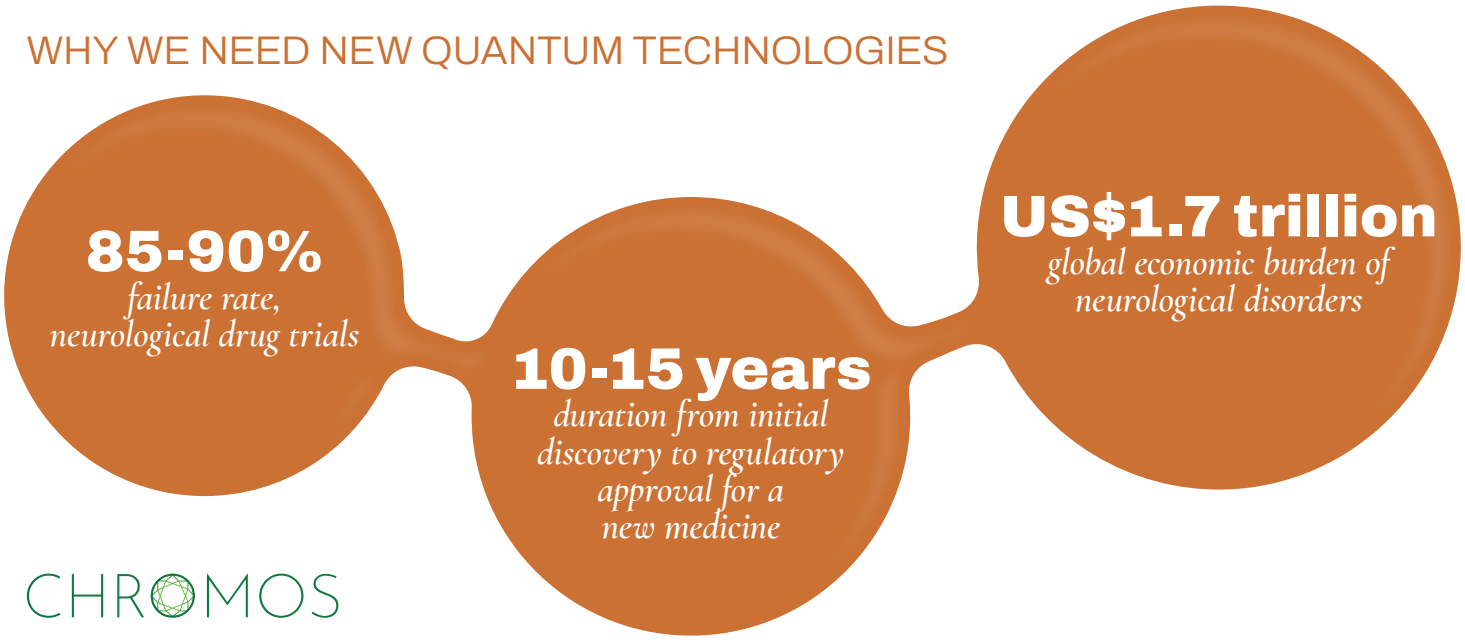
At the core of the platform are fluorescent nitrogen-vacancy defects in synthetic diamonds with atomically engineered surfaces.

The light emitted by the defects can detect small changes in electric fields in real time, allowing researchers to map voltage dynamics in live neuronal cultures without electrodes



Chromos' prototype diamond voltage imaging sensors, pictured here, integrate with industry-standard cell culturing dishes and well plates to enable optical measurements of the tiny bioelectric signals which traditionally require the insertion of electrodes into cells or tissues

WHY WE NEED NEW QUANTUM TECHNOLOGIES



CHROMOS

or genetic modification. Importantly, the technology has progressed beyond proof-of-concept experiments to prototype systems that integrate diamond-based sensing into industry-standard test plates and analysis pipelines designed for high-throughput drug screening. This focus on scalability and compatibility with industry-standard tooling reflects a deliberate translation strategy, aimed at supporting practical decision-making rather than isolated laboratory demonstrations.

By focusing on network-level neuronal activity, Chromos is addressing a long-standing gap between preclinical measurements and the information needed to guide drug development decisions.

"Neurological treatments are slow to develop because the industry lacks ways to test and iterate quickly. Promising compounds can take over a decade to reach phase 3 trials, only to fail because they don't work... time patients can't afford. If developers knew earlier that a compound was unlikely to succeed, they could redirect efforts to more effective options. By turning this technology into a practical tool, our goal is to speed development, reduce costs, and ultimately improve patient outcomes."

Dr Daniel J. McCloskey, CSO of Chromos Labs

Tools that more faithfully capture how human neurons respond to therapeutic compounds have the potential to reduce late-stage failure, lower development costs, and improve confidence in early screening outcomes. In doing so, this work illustrates how quantum technologies developed within QUBIC can move beyond the laboratory to address concrete challenges in healthcare and pharmaceutical research, while strengthening Australia's capability in quantum biotechnology.

The Chromos platform brings together expertise across quantum physics, materials science, optics, neuroscience, and drug discovery, highlighting the multidisciplinary nature of effective translation in quantum biotechnology.

QUBIC collaboration travel fellowships allowed Chromos colleagues from the physics labs at the University of Melbourne and neuroscience labs at the University of Wollongong to spend nearly a month of combined time in each others' labs, establishing significant new capabilities at both locations.

Chromos' current focus is producing practical demonstrations of their platform's utility for drug discovery. Their first target, showing their data can reliably distinguish between different neurological disease states in the lab, is the key stepping stone towards then showing that this data can reveal changes in those diseases caused by therapeutic drugs.

QUBIC Research Translation Portfolio (RTP) funding of nearly $50,000 will facilitate scale-up of Chromos imaging technology to an industry-standard format employed in pharmaceutical screening. The funds will be used to develop new optics which can image millimetre-scale fields of view containing thousands of neurons and couple these optics with robotic systems to allow automated scanning across test plates containing nearly one hundred diamond chips.

In alignment with QUBIC's translation mandate, these developments are helping to bridge a key practicality gap between laboratory demonstrations and real industry uptake, a common pitfall in applied research.

Inclusivity, Diversity, Ethics & Access

Images by Matto Lucas

Science Thrives when People Do

The discoveries we're chasing at the edge of quantum biotechnology are too complex, too ambitious, and too important to be solved from a single viewpoint. We rely on teams that think differently, question assumptions, and bring their own lived experiences into the lab.

Our mission to develop quantum technologies that can reshape health, energy and agriculture asks us to work across boundaries every day. Physics meets biology. Engineering meets medicine. Fundamental science meets real human need. That kind of science thrives when everyone in the room feels safe to contribute, when people from underrepresented backgrounds see a place for themselves here, and when early and mid-career researchers know that their identity is not a barrier but a strength.

As an ARC Centre of Excellence, we aim to demonstrate world-leading science through a world-leading culture. We want every student, researcher and collaborator who comes through QUBIC to feel that they belong, that their voice matters, and that they can build a long, rewarding future in STEM.

We know the broader quantum and STEM sectors still face uneven participation across gender, cultural background and socioeconomic status. And we know deeply interdisciplinary fields like quantum biotechnology need a wider range of perspectives to succeed. Our community reflects this commitment, with 50% of members speaking a language other than English at home and 58% of Chief Investigators being women.

That's why we invest in programs that create genuine opportunity and community. Our Aspire Fellowship, Fostering Inclusive Science Support Scheme, and cross-disciplinary mentoring initiatives are designed to open doors, build skills and ensure people have the support they need to thrive. Through partnerships like our sponsorship with the National Youth Science Forum, we help connect LGBTQIA+ students and other underrepresented young people with pathways into STEM that might otherwise feel out of reach. These are just some examples of QUBIC's long-term commitment to changing who sees themselves in science.

We're proud of the culture our community is building, together. It's a culture where our researchers challenge each other, support each other, and grow together. And it's a culture that strengthens our science every day, shaping the technologies we develop and the impact they will have.

inSTEM: CREATING SPACES WHERE EVERYONE CAN THRIVE

QUBIC was proud to co-deliver the annual inSTEM Conference, held this year in Melbourne. inSTEM brings together members from ARC Centres of Excellence who are committed to building research environments where marginalised and underrepresented people can thrive, and where all researchers are supported to become more capable and active allies.

The program offered deep, practical insight into the lived experiences of diverse STEM researchers. The panel on exploring trans, gender-diverse, and gender-fluid experiences in the workplace, shared honest reflections on navigating academia through the lens of gender identity. These discussions provided valuable, actionable guidance for research leaders and colleagues committed to improving safety, respect and belonging.

"inSTEM was absolutely outstanding. Panellists, speakers and focus groups really brought home 'diversity is a fact, inclusion is a choice,' with methods, tips and strategies to make your research lab a welcoming place for all people."

Emma De Costa,
University of Wollongong

DEVELOPING NEW CHEMISTRY *to bring* Biology Within Quantum Reach

Dr Mina Barzegaramiriolya, QUBIC's 2025 Aspire Fellow, exemplifies the Centre's commitment to building an inclusive research environment while advancing frontier science. Supported through a program designed to uplift researchers from communities that face barriers to participation in STEM, Mina is contributing directly to QUBIC's mission to integrate biology with quantum technologies.

Mina leads efforts to establish new chemistry techniques that enable single proteins to be functionalised onto diamond surfaces, a critical step toward trapping and collocating biomolecules with nanoscale quantum sensors. Her work focuses on minimising the stand-off distance between a protein and an embedded nitrogen-vacancy centre, maximising magnetic signal strength while preventing diffusion outside the sensing volume. Ferritin serves as her proof-of-concept system, forming the foundation for future studies of more complex proteins and enzymes.

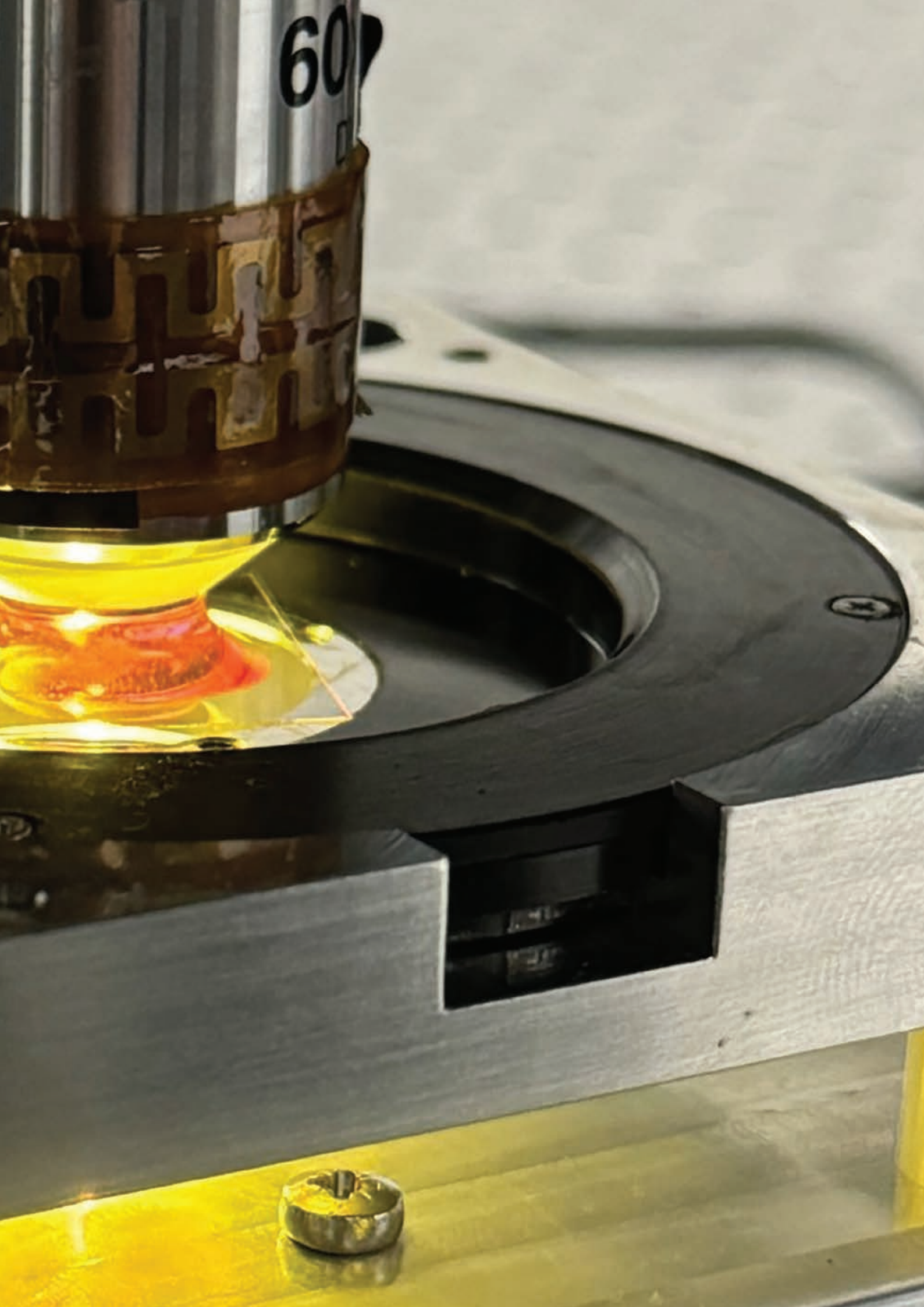
Motivated by a lifelong curiosity about how materials and life systems transform, Mina thrives in uncovering new molecular behaviour at the nanoscale. Her research not only advances QUBIC's scientific agenda but also strengthens the pipeline of quantum-enabled tools with potential future impact in biomedical diagnostics.

Beyond her technical achievements, Mina is committed to broadening participation in STEM. She actively encourages young people to stay curious, ask bold questions and persevere through the challenges of experimental work. As a mother of three, she finds daily inspiration in supporting her children's own exploration of the natural world.

Mina's Aspire Fellowship highlights both her scientific leadership and her contribution to building a more diverse and equitable research culture, which is an essential part of QUBIC's vision for Australia's future in quantum biotechnology.

Appendices contents

Our Capabilities


60

Our Capabilities

This appendix provides detailed evidence of QUBIC's national capability, including people, infrastructure, governance and workforce profile across our five university nodes.

Overview of National Capability

QUBIC delivers a nationally coordinated capability that integrates quantum technologies with the life sciences at a scale unmatched in Australia. With more than 180 researchers across five university nodes, the Centre brings together internationally recognised expertise in quantum sensing, advanced imaging, computation, molecular science, cellular biology, neuroscience, engineering and responsible innovation. This combination of disciplines is essential to the ARC Centre of Excellence mission: creating new quantum-enabled tools to understand living systems and deliver breakthroughs in health, biotechnology, agriculture and sustainability.

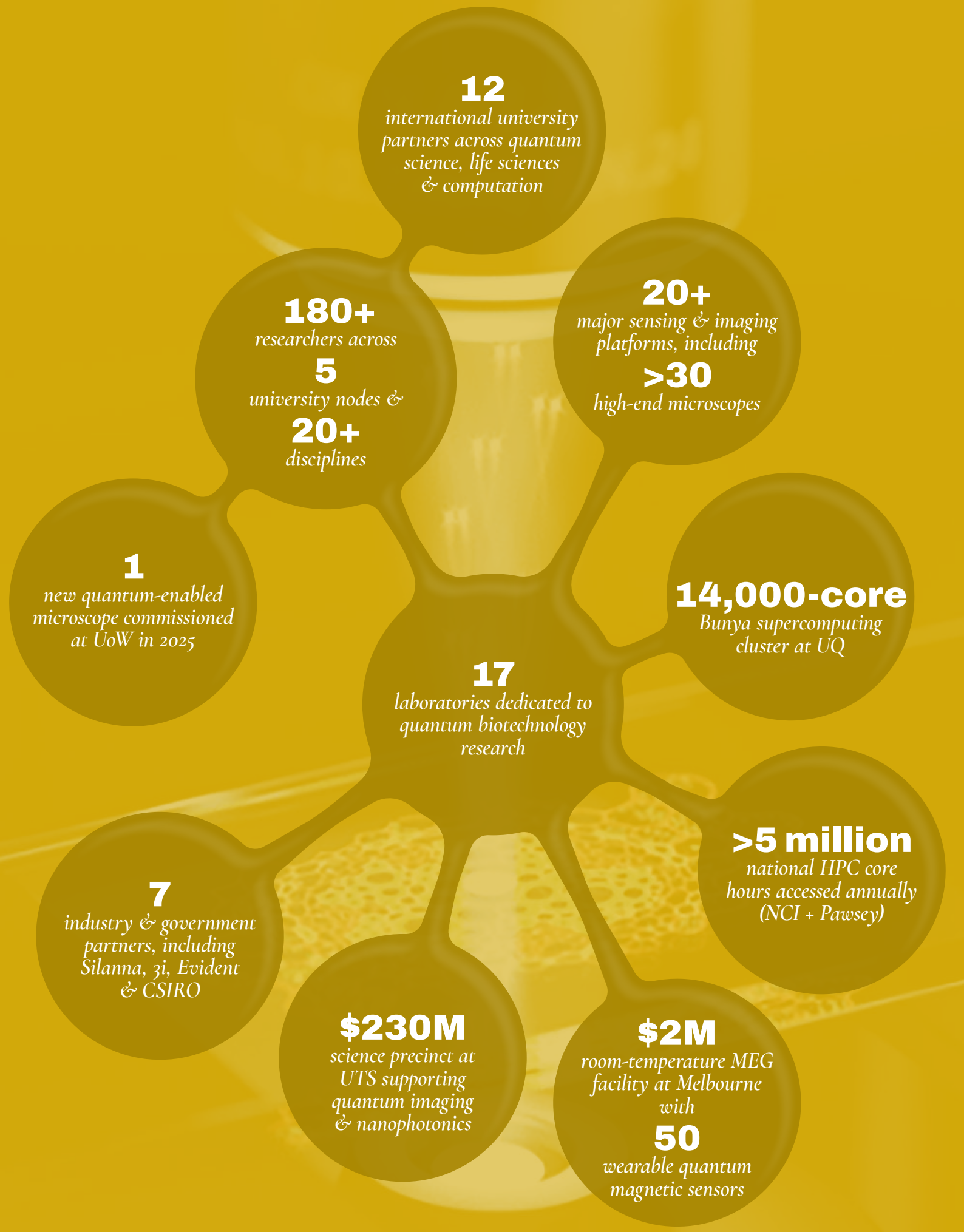
QUBIC's strength lies in the integration of its people, platforms and partnerships. The Centre is led by globally recognised Chief Investigators including Laureate Fellows, Academy Fellows, highly cited researchers and pioneers in quantum sensing, molecular simulation, diamond technologies, photonics, neuroimaging and ethical governance. This leadership is paired with a large cohort of early and mid-career researchers, HDR candidates and technical experts who operate specialised facilities, develop new technologies and ensure rapid dissemination of capability across nodes.

Across the Centre, researchers have access to a coordinated network of national-scale infrastructure: nanofabrication and semiconductor packaging facilities; advanced light, quantum and live-cell imaging platforms; the National Facility for Quantum-Grade Diamond; the $230M UTS Science Precinct; the Molecular Horizons building at Wollongong; purpose-built synthesis labs at Flinders; and Australia's most powerful HPC systems. In 2024–2025, QUBIC added two major new national assets – Australia's first room-temperature OPM-MEG facility and a new quantum-enabled microscope at UoW.

Together, these capabilities form a distributed but unified national platform aligned with the ARC's goals of transformative research, interdisciplinary integration, technology translation and workforce development. QUBIC's coordinated expertise positions Australia to lead globally in quantum biotechnology and to develop the tools and talent needed for future national priority areas in health, advanced manufacturing, biosecurity and sustainable technologies.

These capabilities are sustained through coordinated national leadership, shared platforms and the cross-node collaboration that keeps expertise and knowledge flowing across all five QUBIC nodes.

CAPABILITY AT A GLANCE



NODE CAPABILITIES SUMMARY

The University of Queensland

Strategic Capability

- Largest node: quantum sensing, imaging, biomaterials, simulation, ethics & policy
- Six CIs with cross disciplinary leadership

Key Infrastructure

- CMM + ANFFQ nanofabrication
- Semiconductor packaging hub
- >20 advanced microscopes at IMB
- Confocal rheometer (AIBN)
- 14,000core Bunya HPC
- Two quantum biotechnology laboratories
- Zeiss confocal microscope (new in 2025)

2025 Capability Gains

- New quantum-limited neural microscope
- Advanced sensor capabilities for biomagnetic imaging
- Automated topology builder (ATB) extension for: parameterisation of non-standard amino acids for molecular simulation and protein structure refinement
- New deep tissue imaging capability

National Significance

- National engine for quantum sensor development, modelling & imaging capability

The University of Melbourne

Strategic Capability

- Leading NV diamond, quantum microscopy, biophysics, multiomics, quantum computing
- NEW CI: Prof Marta Garrido (MEG)

Key Infrastructure

- National Facility for Quantum Grade Diamond
- Widefield, confocal & cryogenic Q microscopes
- FLIM/FCS biophysics suite
- IBM Quantum Hub
- NEW: $2M room temperature MEG facility

2025 Capability Gains

- OPMMEG with 50 quantum sensors commissioned
- New benchmarking platform for diamond/ optomechanical sensors

National Significance

- Positions Australia as leader in quantum neuroimaging & NV sensing; anchors national comparison of emerging sensors
- Leading in quantum computing applied to bioinformatics and molecular simulation

University of Technology Sydney

Strategic Capability

- Quantum imaging, nanophotonics, bionanotech, device translation
- Photonics + materials + bioengineering

Key Infrastructure

- $230M UTS Science Precinct
- Nanophotonics & biophotonics labs
- Microfluidics & volumetric imaging LIEF
- Upconversion microscopy, Brillouin microscopy, NIRII spectroscopy

2025 Capability Gains

- New PC2 super resolution imaging lab
- Expanded NIRII & upconversion imaging

National Significance

- Drives innovation & prototyping; core translation node for quantum tools into biotech & health

University of Wollongong

Strategic Capability

- Neuroscience, neurodegeneration, cell biology & computational biophysics electrophysiology, high content screening
- Molecular Horizons facility

Key Infrastructure

- Ferrous free, vibration free slab
- 11 microscopes including confocal & superres
- 6 flow cytometers + mass photometry
- PC1–PC3 labs
- High performance computing

2025 Capability Gains

- NEW quantum-enabled microscope (Do-Ha × McCloskey)

National Significance

- Provides real biological systems for validating quantum tools; connects measurement to function

Flinders University

Strategic Capability

- Molecular design, quantum chemistry, reaction engineering
- Computational & experimental integration

Key Infrastructure

- Deep Thought HPC (1,376 cores)
- >5M NCI core hours
- $2.2M synthesis & electro/photochemistry lab
- Full analytical suite

2025 Capability Gains

- Expanded computational & flow chemistry capability

National Significance

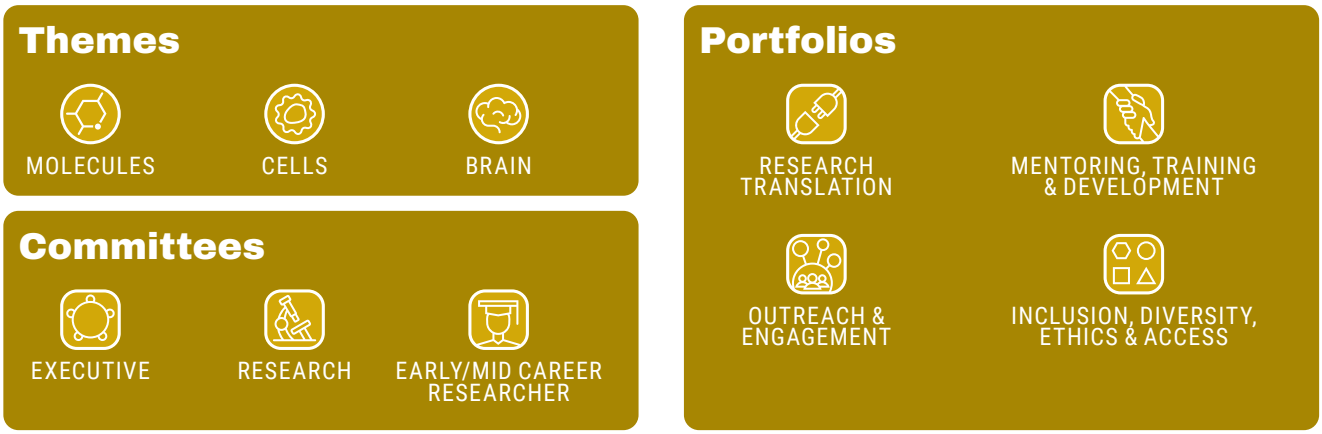
- Anchors molecules theme; bridges quantum theory ↔ chemical & material innovation

People & Teams

QUBIC's national capability is built on its people. Across five university nodes, our researchers, platform scientists, professional staff, HDR candidates and undergraduate interns form an integrated workforce spanning physics, biology, chemistry, engineering, computation, neuroscience and responsible innovation. This diversity is core to our mission: the scientific challenges at the intersection of quantum technologies and the life sciences demand teams that think across disciplines, cultures and methodologies.

We are committed to developing a strong and inclusive research pipeline. Our community includes a large cohort of early and mid-career researchers, a growing number of HDR candidates working across nodes and disciplines, and undergraduate students who experienced quantum biotechnology for the first time through Centre research in 2025. Diversity and equity remain central to our culture, and detailed demographic data are included in this appendix in line with ARC reporting expectations.

The following section lists QUBIC's Chief Investigators and their research teams by node and laboratory, including research fellows, HDR candidates, Honours students and 2025 undergraduate summer interns. This structure reflects how QUBIC operates in practice: real labs led by world-class investigators, working with multidisciplinary teams who develop, apply and translate quantum-enabled technologies to advance the life sciences. Each lab contributes distinct expertise while forming part of a coordinated national ecosystem that enables the Centre's scientific outcomes and long-term capability building.



This legend represents QUBIC's Themes, Committees, and Portfolios, and highlights the people driving these initiatives forward.

RESEARCH TEAMS ACROSS QUBIC'S FIVE NODES

The University of Queensland

PROF WARWICK BOWEN
CENTRE DIRECTOR

Lab Expertise

Quantum sensing, quantum optics, quantum microscopes for single-cell and molecular biology

RESEARCH FELLOWS


Dr Alex Terrasson


Dr Benjamin Carey


Dr Eleanor Trimby


Dr Igor Marinkovic


Dr Jesse Slim


Dr Lars Madsen


Dr Nicolas Mauranyapin


Dr Sam Scholten


Dr Soroush Khademi


Dr Nathaniel Bawden


Dr Nishta Arora


Dr Pavlina Naydenova

HIGHER DEGREE RESEARCH STUDENTS


Aditya Aditya

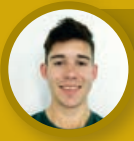

Beng Jiong Ang


Charlie Gray


Dan Lei


David John


Heehun Sung


Jack Moody


Jackson Lucas


Kyle Clunies-Ross


Luke Kelly


Marino Lara Alva

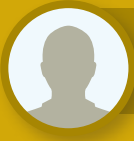

Poh Meng Yeo

MASTERS, HONOURS & UNDERGRADUATE STUDENTS


Harry Mogg
MASTERS


Max Foreman
HONOURS


Dylan Litchfield
HONOURS


Finn Macnamara
UNDERGRADUATE


Kayzer Ali
UNDERGRADUATE


Lara Christ
UNDERGRADUATE

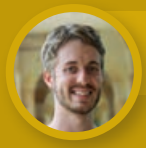
The University of Queensland

PROF HALINA RUBINSZTEIN-DUNLOP
DEPUTY DIRECTOR; CHAIR, RESEARCH TRANSLATION PORTFOLIO

Lab Expertise

Optical physics, laser micromanipulation, nanophotonics, light–matter interaction

RESEARCH FELLOWS



Dr Mark Watson

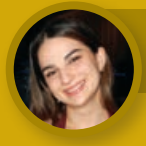
Dr Alexander Stilgoe

HIGHER DEGREE RESEARCH STUDENTS

Lachlan Miller

Patrick Grant

HONOURS STUDENT



Eleanor Smith
HONOURS

PROF ALAN MARK
MOLECULES THEME CO-LEAD

Lab Expertise

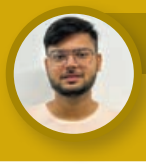
Molecular dynamics, biomolecular simulation, protein dynamics

RESEARCH FELLOWS

Dr Martin Stroet
MOLECULES THEME CO-LEAD

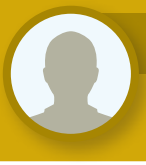
Dr Sharif Nada

HIGHER DEGREE RESEARCH STUDENTS



Abhay Sharma

Callum Macfarlane



Sidra Batool

The University of Queensland

PROF JENNIFER STOW
NODE LEADER; CHAIR, OUTREACH & ENGAGEMENT PORTFOLIO

Lab Expertise

Live cell imaging, membrane trafficking, inflammation and subcellular dynamics

RESEARCH FELLOWS

Dr Claudia Stocks

Dr Qian Guo

HIGHER DEGREE RESEARCH STUDENTS

Hongyu Shen

Sylvia Tan

Vrushali Maste

PROF ALAN ROWAN
CHIEF INVESTIGATOR

Lab Expertise

Biomaterials, biomimetic hydrogels, cell–matrix interactions

RESEARCH FELLOWS

Dr Nicholas Westra Van Holthe

Dr Parinaz Ahangar

The University of Queensland

A/PROF ALLISON FISH
CHAIR, IDE&A PORTFOLIO

Lab Expertise

Responsible innovation, ethics, policy, governance of emerging technologies

RESEARCH FELLOWS

Dr Alana Brekelmans

Dr Omkar Nadh Pattela

Dr Pratap Devarapalli

Dr Marita Rodriguez

Dr Pedram Rashidi

HIGHER DEGREE RESEARCH STUDENT

Katherine Rock

UNDERGRADUATE STUDENT

Anthea Sun
UNDERGRADUATE

The University of Melbourne

PROF LLOYD HOLLENBERG
CHIEF INVESTIGATOR

Lab Expertise

Quantum computing, quantum bioinformatics, molecular simulations

RESEARCH FELLOWS

Dr Floyd Creevey

Dr Michael Jones

MASTERS STUDENTS

Rebecca Haustein
MASTERS

Keith Wong
MASTERS

The University of Melbourne

A/PROF DAVID SIMPSON
NODE LEADER

Lab Expertise

Diamond based quantum sensors, biomedical magnetometry

RESEARCH FELLOWS

Dr Daniel McCloskey

Dr Eliza Rokhsat

Dr Galya Haim

Dr Mina Barzegaramiriolya

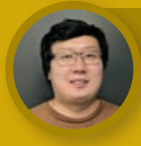
HIGHER DEGREE RESEARCH STUDENTS

Angela Hermann

Charlie Pattinson

Claire Dawson

Dhilan Vallury



Di Wang

Ella Walsh

Hunter Johnson

Trent Ralph

Tuesday Couzens

MASTERS & HONOURS STUDENTS

Do Tan Vinh
MASTERS

Lianne Lay
HONOURS

PROF KIM-ANH LÊ CAO
CHIEF INVESTIGATOR

Lab Expertise

Multiomics integration, statistical genomics, computational biology

HIGHER DEGREE RESEARCH STUDENTS

Chengyi Ma

Xiaochen Zhang

Zuzana Leova

The University of Melbourne

A/PROF ELIZABETH HINDE
CHIEF INVESTIGATOR, CELL THEME LEAD

Lab Expertise

Fluorescence lifetime imaging, single molecule spectroscopy, nuclear architecture

RESEARCH FELLOWS

Dr Jieqiong Lou

Dr Michael Mlodzianoski

HIGHER DEGREE RESEARCH STUDENTS

Joaquín Hinojosa

Julissa Sanchez-Velasquez

Nazanin Ghaderi Nejad

Shikun Ma

Siyuan Meng

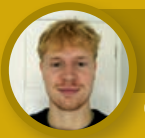
Tao Sun

MASTERS & HONOURS STUDENTS

Yung Zhen Tan
MASTERS

Blake Bishop
MASTERS

Cameron Petty
MASTERS



Paul Armitage
MASTERS

Saul Menendez
HONOURS

PROF MARTA GARRIDO
CHIEF INVESTIGATOR

Lab Expertise

Room temperature MEG, quantum-enabled neuroimaging, brain connectivity

RESEARCH FELLOWS

Dr Elise Rowe

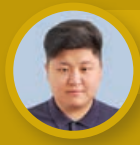
Dr Sophie Lin

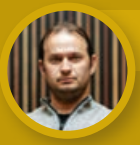
University of Technology Sydney

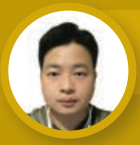
DIST. PROF DAYONG JIN
CHAIR, RESEARCH COMMITTEE
LEAVE OF ABSENCE COMMENCING JULY 2025

Lab Expertise
Quantum upconversion imaging, nanophotonics, bionanotechnology

RESEARCH FELLOWS


Dr Baokai Wang


Dr Sergey Kruk


Dr Zhichao Yang

HIGHER DEGREE RESEARCH STUDENT


Fei Su

PROF JIAJIA ZHOU
CHIEF INVESTIGATOR

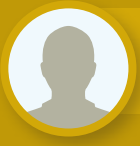
Lab Expertise
Nanoparticle engineering, quantum probes, bioimaging

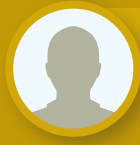
RESEARCH FELLOWS


Dr Franco Centurion Rodriguez


Dr Martin Sadraeian


Dr Nisha Mehta


Ajaykumar Mavilakizhakke Puthiyaveettil


Yee Yee Khine

HIGHER DEGREE RESEARCH STUDENTS

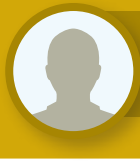

Yitong Zhao


Maoxin Zhang


Farrel Separgo

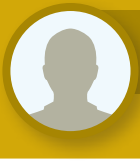

Shijie Zhang

MASTERS & UNDERGRADUATE STUDENTS


Pokpong Thananchai
MASTERS


Alex Wright
UNDERGRADUATE

RESEARCH ASSISTANT


Mahnaz Maddahfar

University of Technology Sydney

PROF IRINA KABAKOVA
CELLS THEME LEADER, RESEARCH COMMITTEE CHAIR

Lab Expertise

Brillouin microscopy, mechanobiology, photonic integration

RESEARCH FELLOWS

Dr Isa Ahmadalidokht

Dr Meryem-Nur Duman

HIGHER DEGREE RESEARCH STUDENT

Mahya Mohammadi

TECHNICAL OFFICER

Hadi Mahmodi

University of Wollongong

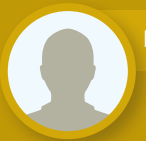
PROF LEZANNE OOI
BRAIN THEME LEADER; NODE LEADER

Lab Expertise

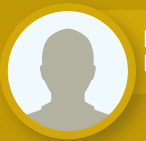
Neurodegeneration, stem cell models, neuronal/glial cell biology

RESEARCH FELLOWS

Dr Dzung Do-Ha



Dr Tom Walker



Dr Amal El Hage

HIGHER DEGREE RESEARCH STUDENTS

Emma De Costa

Fariha Khaliq

UNDERGRADUATE STUDENT

Laz Ashcroft
UNDERGRADUATE

RESEARCH ASSISTANT

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University of Wollongong

PROF HAIBO YU
CHAIR, MTD PORTFOLIO

Lab Expertise

Computational chemistry, molecular simulation, quantum biological modelling

RESEARCH FELLOWS

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Dr Nehad Elsalamouny

Dr Qiang Zhu

HIGHER DEGREE RESEARCH STUDENTS

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Jiawa Wang

Zahra Raza

HONOURS STUDENT

Nicholas Fantham

Flinders University

PROF MICHELLE COOTE
NODE LEADER

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RESEARCH FELLOWS

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*New AI in 2025

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The University of Queensland

Dr Michael Taylor*
The University of Otago

Prof Ruth Wallace
Charles Darwin University

Dr Leo Zhang
University of Technology Sydney

*New AI in 2025

Governance & Leadership

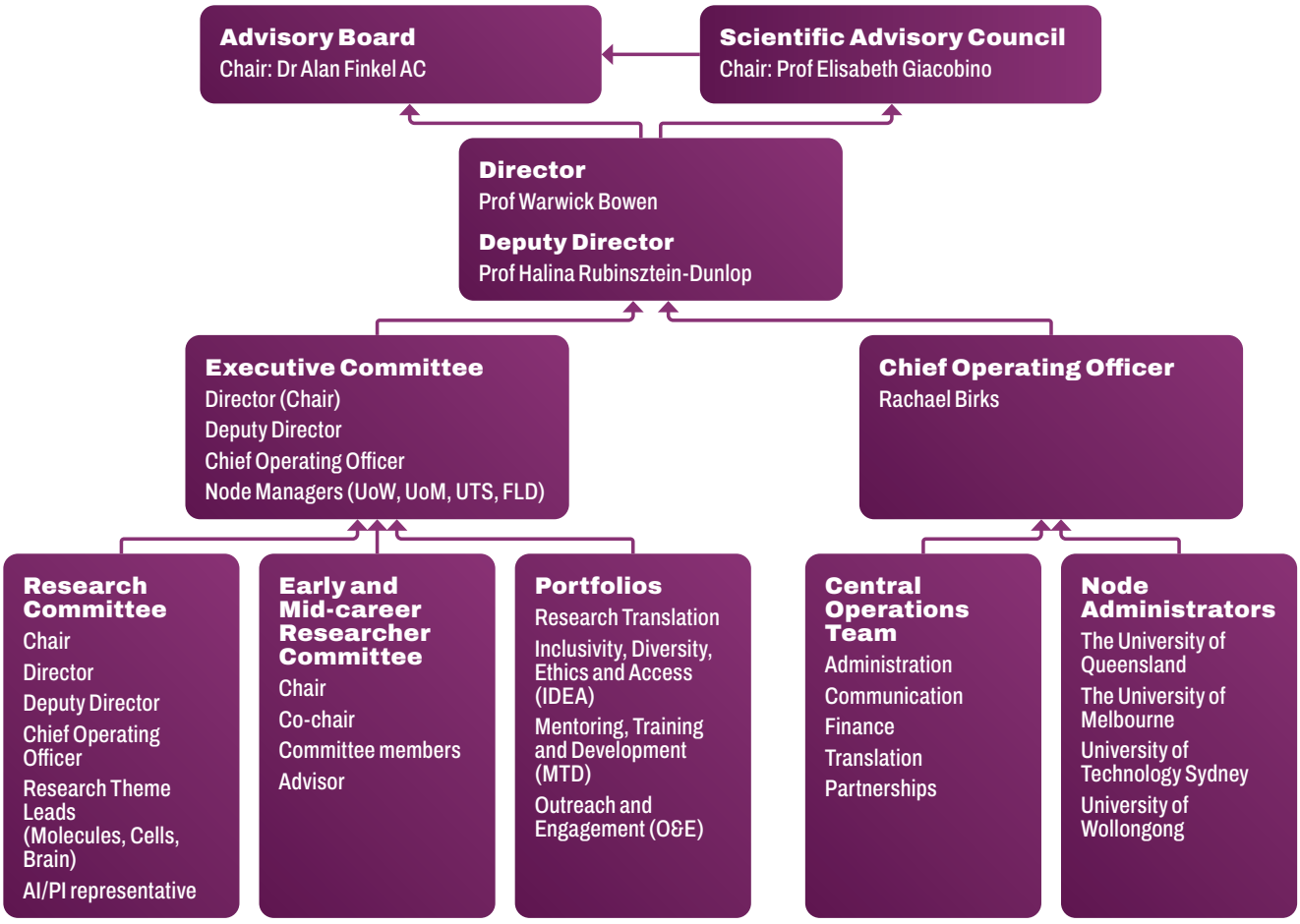
QUBIC's governance framework ensures the Centre operates as a coordinated national capability, delivering high-quality research and strategic impact across all five nodes. The Centre is led by the Director, Deputy Director, and Chief Operating Officer, supported by Node Leaders, Research Committee and Portfolio Chairs who together provide cohesive scientific direction, operational oversight and a unified research culture.

Independent guidance comes from the Scientific Advisory Council and Advisory Board, which include national and international leaders in quantum technologies, biotechnology, neuroscience, chemistry, policy and industry. These bodies provide strategic advice, assess progress, and help position QUBIC's research within Australia's broader science, innovation and industry landscape.

A dedicated professional team supports finance, operations, partnerships, reporting and communication, ensuring strong governance foundations and consistent processes across nodes. This integrated leadership model enables QUBIC to manage risk effectively, align research with national priorities, and maintain a clear focus on capability building, translation and interdisciplinary excellence.

Through this structure, QUBIC sustains a vibrant, collaborative and future-focused environment that enables the Centre to deliver nationally coordinated leadership in quantum biotechnology.

GOVERNANCE STRUCTURE



ADVISORY BODIES

Advisory Board

Dr Alan Finkel
Chair
Special Adviser to the Australian Government

Dr Chris Behrenbruch
Telix Pharmaceuticals

Prof Michelle Simmons
University of New South Wales

The Honorary Gabrielle Upton
Proto Axiom

Prof Christine Williams
The University of Queensland

Prof Alex Zelinsky
University of Newcastle

Scientific Advisory Council

Prof Elisabeth Giacobino
Chair
Université Pierre et Marie Curie

Sir Prof Peter Knight
Imperial College London

Prof Katarina Svanberg
Lund University

Prof Ronald Walsworth
University of Maryland

Workforce & Diversity Profile

QUBIC's national capability is built on a diverse, interdisciplinary workforce spanning physics, biology, chemistry, engineering, computation and neuroscience. Across all five nodes, our people include Chief Investigators, research fellows, platform specialists, professional staff, HDR candidates and undergraduate interns who contributed to Centre research in 2025. This breadth of backgrounds and experience strengthens QUBIC's scientific depth and ensures we are building a future workforce capable of operating across disciplines.

We are committed to embedding inclusive practices into every aspect of our research culture. Through scholarships, fellowships, training programs and outreach initiatives, the Centre supports participation from underrepresented groups and provides equitable opportunities for researchers at all stages. These efforts help create a welcoming, supportive environment where individuals from all backgrounds can contribute and succeed.

QUBIC also fosters a strong early-career community. Our EMCRs engage in cross-node collaboration, professional development and inclusive networking activities that strengthen connection and knowledge-sharing across the Centre. These initiatives help build a cohesive sense of belonging while supporting EMCRs to develop as future leaders in quantum biotechnology.

PERSONNEL DEMOGRAPHICS

	Woman / Female	Man / Male	Non-binary	Different Term	Prefer not to answer	Total
Program Personnel						
Chief Investigators	10	7	0	0	0	17
Postdoctoral Researchers / Research Fellows (i.e. research staff with a PhD or equivalent)	26	33	0	0	1	60
Administrative Staff	7	5	0	0	1	13
Total	**43**	**45**	**0**	**0**	**2**	**90**
Student Personnel						
PhD Students	24	33	0	0	1	58
Honours / Masters	3	11	0	0	1	15
Undergraduate Students	3	3	0	0	0	6
Total	**30**	**47**	**0**	**0**	**2**	**79**
Total Personnel	**73**	**92**	**0**	**0**	**4**	**169**
Culturally and Linguistically Diverse (CALD) Personnel						**84**

Interdisciplinary Workforce Capability

This section outlines QUBIC's internal capability-building programs that develop interdisciplinary expertise across our workforce.

In 2025, QUBIC expanded its interdisciplinary capability through initiatives designed to help researchers work confidently across quantum science, biology, engineering and clinical domains. These activities created structured opportunities for researchers to engage with unfamiliar disciplines, deepen shared scientific understanding and collaborate effectively across nodes.

Key interdisciplinary capability-building activities included:

- **Connect Initiative** – fostered cross-node scientific conversations and interdisciplinary problem-solving
- **QUBIC Annual Symposium** – all-of-Centre conference showcasing interdisciplinary research and shared scientific language
- **qLIFE Conference** – bringing global and national experts together to broaden disciplinary perspectives
- **QUBIC Seminar Series** – regular knowledge-exchange on frontier topics spanning physics, biology and biotechnology
- **Themes Workshop** – focused, cross-disciplinary research planning sessions
- **EMCR-for-EMCR sessions** – peer-led discussions that strengthened interdisciplinary literacy and collaboration

Collectively, these activities engaged hundreds of participants across all five nodes, enabling students, EMCRs and senior researchers to build fluency across disciplines and work cohesively across the Centre's diverse themes. This strengthened interdisciplinary capability directly contributed to new cross-node publications, collaborative grant successes and the co-development of major research platforms in 2025, embedding interdisciplinary practice into the Centre's core research program and accelerating impact.

Partnerships & Engagement

QUBIC works closely with industry, government, and national and international partners to translate quantum technologies into real-world applications. In 2025, the Centre expanded several major partnerships and established new collaborations across research, industry, clinical, education and policy sectors.

NATIONAL PARTNERSHIPS & COLLABORATORS

Major National Partners and Activities

- **Cruxes Innovation** — EMCR Research Translation session
- **Education Queensland** — Qˣ Summit engagement
- **Quantum Australia** — Qˣ Summit, Quantum Meets Biotech, Quantum Meets Decarb, qLIFE Public Lecture, Quantum Connect
- **Queensland Quantum Decarbonisation Alliance (QDA)** — world-first partnership applying quantum technologies to net-zero challenges
- **Sanofi** — expanded collaboration on quantum-enabled biotechnology
- **Science in Public** — EMCR science communication training
- **Sydney Quantum Academy** — Quantum Future Talent Careers Fair, Quantum Connect
- **TAFE Queensland** — Qˣ Summit engagement
- **Zeiss** — expanded collaboration supporting imaging innovation
- **Clinical and sports-sector partners** — supporting real-world deployment of quantum brain imaging technologies
- **ARC Centres of Excellence network** — inSTEM, Quantum Australia Conference, Donna Strickland National Quantum Tour, National & Quantum Dark Matter Road Trip, Qˣ
- **Australian universities** — inSTEM, qLIFE programming, Workforce Futures Workshop

Invited National Speakers at QUBIC Events

qLIFE:

- Prof Brant Gibson (RMIT),
- Prof Ivan Kassal (University of Sydney)

QUBIC Seminar series:

- Dr Rodney Appleby (Orica),
- Dr Saree Alnaghy (University of Wollongong),
- Dr Gesa Grüning (UNSW),
- Dr Juan (Jane) Li (Australian National Fabrication Facility)

Themes Workshop:

- Fernando Alves (Quantum Australia),
- Dr Mark Waller (Pending AI)

Winter School:

- Susan Allison (Nature Portfolio),
- Prof Michael Biercuk (Q-CTRL),
- Niall Byrne (Science in Public),
- Dr Caitlin Curtis (UQ),
- Jan Henrik Gruenhagen (UTS),
- Helena Robinson (UTS)

INTERNATIONAL PARTNERSHIPS & COLLABORATORS

QUBIC's international academic collaborators span North America, Europe, the United Kingdom and Asia, and include research institutions, Centres of Excellence, quantum technology laboratories and invited international speakers who contributed to QUBIC events, seminars, research discussions and qLIFE programming throughout 2025.

Major International Partners

- **NSF QuBBE (USA)** — qLIFE
- **QIQB** — qLIFE
- **SPIE** — qLIFE
- **Nvision** — qLIFE
- **Xanadu** — qLIFE
- **iAccelerate** — qLIFE
- **AVS Quantum Science** — qLIFE
- **PsiQuantum (USA/Cambridge)** — QDA, QUBIC Seminar, qLIFE
- **IBM Quantum** — QUBIC Seminar, qLIFE
- **QBioMed (UK)** — qLIFE
- **Quantum Bioscience Centre (Germany)** — qLIFE

Invited International Speakers at QUBIC Events included the following:

qLIFE:

- Dr Alex Aliper (Insilico Medicine),
- Prof Ulrik Andersen (Technical University of Denmark),
- Prof Kirstine Berg-Sørensen (Technical University of Denmark),
- Prof Yudong Cao (BCG X),
- Prof Jennifer Dionne (Stanford University / Q-NEXT),
- Dr Felix Donaldson (UCL),
- Prof Daniele Faccio (University of Glasgow),
- Prof Ivan Favero (CNRS, Paris Cité),
- Dr Rebecca Frank Hayward (Nonfiction Labs),
- Prof Hitoshi Ishiwata (National Institutes for Quantum Science and Technology, Japan),
- Prof Fedor Jelezko (University of Ulm),
- Dr Gavin Jones (IBM),
- Prof Svenja Knappe (FieldLine & University of Colorado),
- Prof Sir Peter Knight (Imperial College London),
- Prof Quan Li (Chinese University of Hong Kong),
- Prof Sabrina Maniscalco (Algorithmiq & University of Helsinki),
- Dr Sarah Mann (University of Glasgow),
- Prof Peter Maurer (University of Chicago),
- Dr Ben Miller (UCL),
- Prof Miles Padgett (University of Glasgow),
- Prof Martin Plenio (University of Ulm),
- Prof Makoto Negoro (Osaka University),
- Dr Tom O'Brien (Google Quantum),
- Prof Lene Oddershede (Novo Nordisk Foundation),
- Prof Dan Oron (Weizmann Institute),
- Dr Will Pol (PsiQuantum),
- Prof Romana Schirhagl (QT Sense & Groningen University),
- Prof Fazhan Shi (University of Science and Technology of China),
- Prof Ronald Walsworth (University of Maryland),
- Prof Lihong Wang (Caltech)

QUBIC Symposium:

- Prof Kirstine Berg-Sørensen (Technical University of Denmark),
- Prof Daniele Faccio (University of Glasgow),
- Prof Romana Schirhagl (QT Sense & Groningen University)

QUBIC Seminar series:

- Dr Gavin Jones (IBM),
- A/Prof Joana Perera (Karolinska Institute),
- Prof Terry Rudolph (PsiQuantum)

TRANSLATION ACTIVITIES

In 2025, QUBIC accelerated the translation of quantum biotechnology through activities that brought researchers together with clinicians, industry partners, government agencies and sector leaders to explore applications, refine opportunities and identify pathways to deployment. Through workshops, demonstrations and strategic engagement with end-users, QUBIC strengthened the bridge between frontier quantum science and the communities, industries and sectors that stand to benefit from it. These activities are shaping the early translation landscape for quantum biotechnology in Australia and positioning QUBIC as a national leader in quantum-enabled innovation.

Key themes included:

- **Engagement with policymakers,** including health, industry, environment and innovation agencies, to align quantum sensing and imaging with national priorities.
- **Building member readiness for translation,** through internal training on industry engagement, research translation and working across academic–industry boundaries.
- **Showcasing QUBIC capability to end-users,** with facility tours and demonstrations introducing industry and government audiences to quantum advances in sensing, imaging and biotechnology.

A full list of 2025 translation activities is included in the KPI section of this report.

MENTORING, TRAINING & DEVELOPMENT

QUBIC delivered a targeted suite of training, mentoring and professional development activities in 2025 to support researchers at all career stages. These programs strengthened leadership, communication, translation readiness and research capability across the Centre.

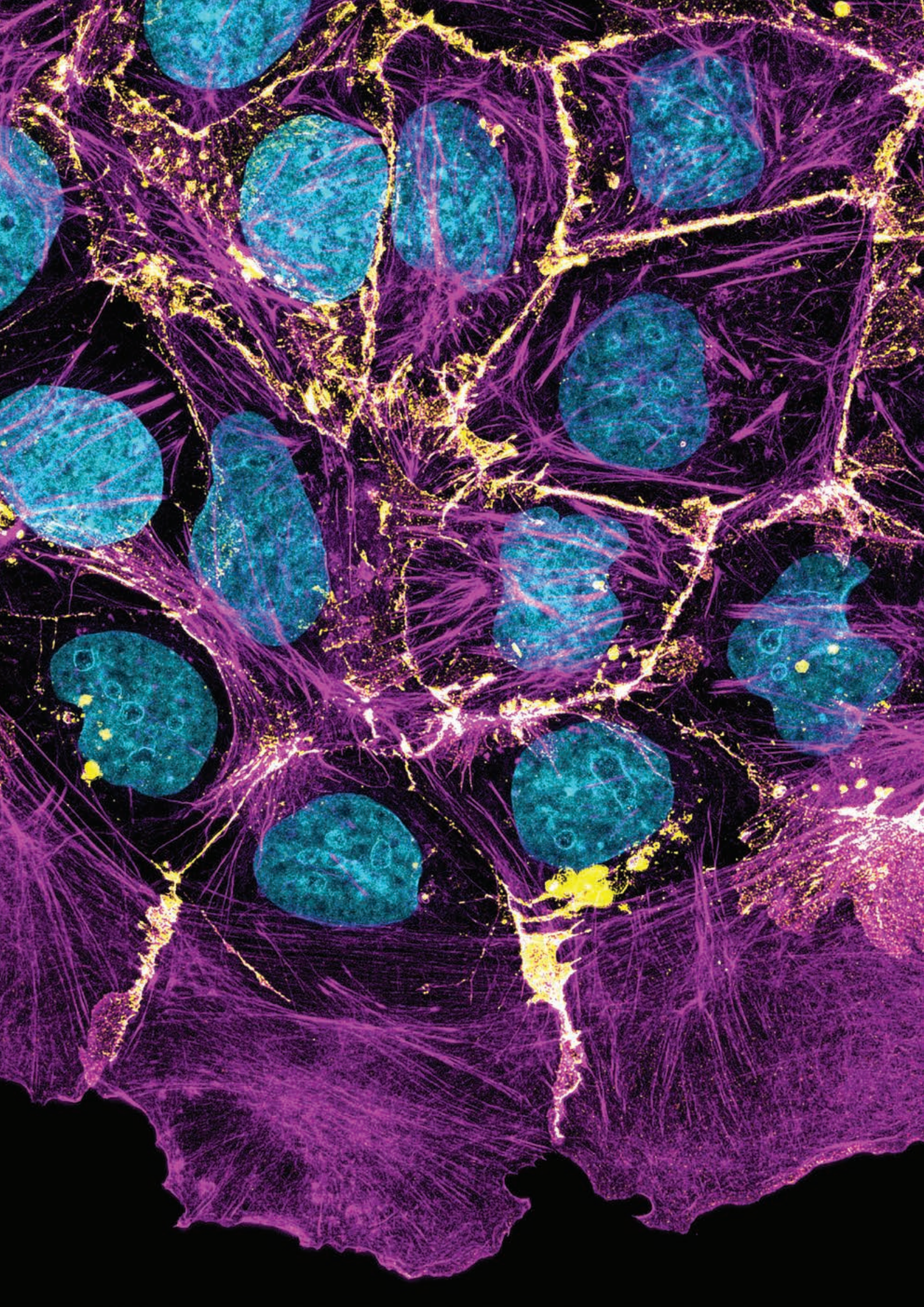
Key activities included:

- **Winter School** – a professional development program designed to strengthen the transferable skills of early and mid-career researchers, with a 2025 focus on building science communication capability and effective teamwork in interdisciplinary research environments
- **EMCR-for-EMCR sessions** – peer-led career and skills development
- **Formal mentoring** – structured support across nodes and disciplines
- **Connect Initiative** – strengthening researcher networks and career visibility
- **Professional skills training** – science communication through Symposium and qLIFE poster sessions and the 3MT pitch

Together, these activities supported researcher development and provided clear pathways for students and EMCRs to build skills, confidence and leadership within the Centre.


LASER APERTURE

Digging Deeper



Key Performance Indicators

Performance measure	2024	2025	2025 Actual	Performance rate (50% 100% 150% 200%)	2026	2027	2028	2029	2030
1 Number of research outputs									
Journal articles	40	60	**51**	85%	80	85	85	85	85
Conference publications (including abstracts)	10	17	**19**	112%	34	51	51	51	51
Patents	0	1	**1**	100%	1	1	1	1	1
Invited, keynote and plenary talks	10	30	**129**	430%	30	35	35	45	45
2 Quality of research outputs									
Journal publications in Top 25% Journal Percentiles by CiteScore Percentile (from the SciVal database)	80%	80%	**86%**	107%	80%	80%	80%	80%	80%
Cross discipline/node publications (20)	10%	20%	**39%**	195%	25%	30%	40%	50%	50%
Fellowships awarded (internal and external)	4	6	**6**	100%	8	8	8	8	4
Awards	5	10	**62**	620%	15	15	15	15	15
3 Workshops/conferences held/offered by the Centre	3	4	**10**	250%	5	5	5	5	3
4 Training courses held/offered by the Centre	3	6	**8**	125%	6	6	6	6	5
5 Additional researchers working on Centre research									
Postdoctoral researchers	8	17	**19**	112%	17	17	17	8	4
Honours, undergraduate and Masters students	8	17	**17**	100%	17	17	17	8	4
PhD students	17	17	**19**	112%	17	24	17	8	4
Associate Investigators	6	10	**13**	130%	10	10	10	10	5
6 Postgraduate completions	–	3	**9**	300%	12	24	24	24	24
7 Mentoring programs offered by the Centre	3	3	**5**	167%	3	3	3	3	3

Performance measure	2024	2025	2025 Actual	Performance rate (50% 100% 150% 200%)	2026	2027	2028	2029	2030
8 Presentations/briefings									
To the public	10	10	**13**	130%	10	10	20	20	20
School engagement activities	10	10	**17**	170%	10	15	15	20	20
To industry/government/ business/end users	5	17	**33**	194%	17	17	17	17	17
9 New organisations collaborating with, or involved in, the Centre	1	2	**8**	400%	4	5	5	5	5
10 Research personnel from under-represented groups	30%	35%	**40%**	114%	40%	45%	50%	50%	50%
Centre-specific KPIs									
Translational research activities initiated	4	6	**9**	150%	8	10	10	10	10
Startups	0	0	**0**		0	1	2	2	3
Additional research income ($,000)	0	1,000	**17,500**	1750%	1,500	2,000	2,500	3,000	3,000

Finances

STATEMENT OF INCOME & EXPENDITURE

Reporting Period	2023/24[1] Actuals ($)	2025 Actuals ($)
Opening Balance	**–**	**10,024,968**
Income		
ARC Centre Of Excellence Grant[2]	10,753,654	5,807,379
Administering & Collaborating Organisation Contributions		
The University Of Queensland	1,155,511	641,783
The University Of Melbourne	331,753	294,573
University Of Technology Sydney	396,381	156,373
University Of Wollongong	272,285	138,062
Flinders University	54,777	59,239
Partner Organisation Contributions	250,000	125,000
State Government Contributions	750,000	150,000
Other Income	–	107,292
Total Income	**13,964,361**	**7,479,701**
Expenditure		
Personnel	2,712,263	3,793,629
Scholarships	45,506	123,474
Equipment	443,460	323,924
Maintenance & Consumables	167,261	442,357
Travel	265,548	444,717
Other	305,356	391,309
Total Expenditure	**3,939,393**	**5,519,410**
Balance Carried Forward[3]	**10,024,968**	**11,985,260**

IN-KIND CONTRIBUTIONS

Reporting Period	2023/24[1] Actuals ($)	2025 Actuals ($)
The University of Queensland	1,746,991	1,708,658
The University of Melbourne	811,859	822,074
University of Technology Sydney	485,500	576,213
University of Wollongong	1,515,210	1,516,210
Flinders University	136,591	221,175
Partner Organisations	409,426	346,466
Total In-Kind Contributions	**5,105,577**	**5,190,796**

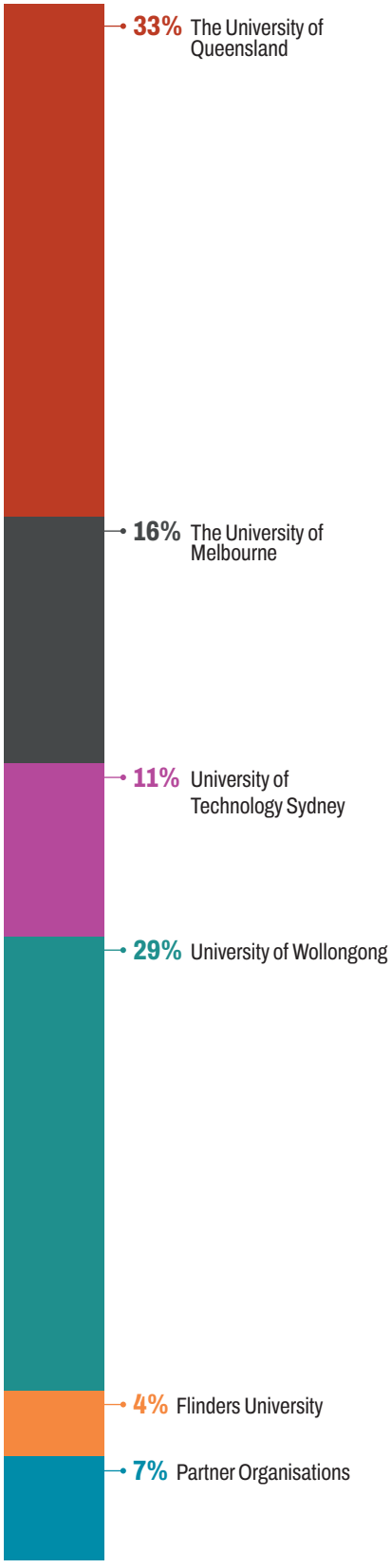
Notes to the Financial Statement

1. The 2024 reporting period is inclusive of 2023 given the Centre commenced mid-December 2023.
2. ARC Centre of Excellence Grant Funds are inclusive of Annual Indexation.
3. The carry forward balance includes funds reserved for final year operations due to the Centre commencing mid-December 2023.

INCOME SOURCE

EXPENDITURE

IN-KIND CONTRIBUTIONS



Publications

JOURNAL ARTICLES

1 Antonopoulou, M., Truong, N. P., Egger, T., **Kroeger, A. A., Coote, M. L.,** & Anastasaki, A. (2025). Acid-Enhanced Photoiniferter Polymerization under Visible Light. *Angewandte Chemie, 137*(9).

2 Balaji, S., **Fish, A.,** & Sherman, B. (2025). Disclosure of country of origin in patent applications might not help to protect genetic resources and traditional knowledge. *Nature Plants, 11*(1), 4–5.

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6 Bouvet, P., Bevilacqua, C., Ambekar, Y., Antonacci, G., Au, J., Caponi, S., Chagnon-Lessard, S., Czarske, J., Dehoux, T., Fioretto, D., Fu, Y., Guck, J., Hamann, T., Heinemann, D., Jähnke, T., Jean-Ruel, H., **Kabakova, I.,** Koski, K., Koukourakis, N., Krause, D., La Cavera III, S., Landes, T., Li, J., Mahmodi, H., Margueritat, J., Mattarelli, M., Monaghan, M., Overby, D.R., Perez-Cota, F., Pontecorvo, E., Prevedel, R., Ruocco, G., Sandercock, J., Scarcelli, G., Scarponi, F., Testi, C., Török, P., Vovard, L., Weninger, W.J., Yakovlev, V., Yun, S., Zhang, J., Palombo, F., Bilenca, A., & Elsayad, K. (2025). Consensus statement on Brillouin light scattering microscopy of biological materials. *Nature Photonics, 19*(7), 681–691.

7 **Bowen, W. P.** (2025). Large speed-up of quantum emitter detection via quantum interference. *Quantum Science and Technology, 10*(4), 45065.

8 Cai, Y., Lu, M., Qin, X., **Jin, D.,** & **Zhou, J.** (2025). Understanding shell coating effects to overcome quenching in single anisotropic upconversion nanoparticles. *Nature Communications, 16*(1), Article 4927.

9 Cater, J. H., **El Salamouni, N. S.,** Mansour, G. H., Hutchinson, S., McGuinness, C., Mueller, S. H., Spinks, R. R., Shanmugam, N., Pichard-Kostuch, A., Zahoransky, V., Ghodke, H., Ribezzi-Crivellari, M., **Yu, H.,** van Oijen, A. M., Griffiths, A. D., & Spenkelink, L. M. (2025). Optimised nanobody-based quenchbodies for enhanced protein detection. *Communications Biology, 8*(1), Article 937.

10 De Alwis Watuthanthrige, N., Moskalenko, A., **Kroeger, A. A., Coote, M. L.,** Truong, N. P., & Anastasaki, A. (2025). Low temperature thermal RAFT depolymerization: the effect of Z-group substituents on molecular weight control and yield. *Chemical Science (Cambridge), 16*(8), 3516–3522.

11 Deng, J., **Kroeger, A. A., Wang, J. Y. J.,** Kronenberg, D., Sherburn, M. S., & **Coote, M. L.** (2025). Effect of Lewis Acids on Photoenolization/Diels–Alder Reactions. *Journal of Organic Chemistry, 90*(50), 18103–18112.

12 Deng, J., Kronenberg, D., **Wang, J. Y. J., Kroeger, A. A.,** Sherburn, M. S., & **Coote, M. L.** (2025). Computational and Experimental Studies into Photoenamination/Diels–Alder Reactions. *Journal of Organic Chemistry, 90*(34), 12216–12225.

13 **Devarapalli, P.,** Nicol, D., & Nielsen, J. (2025). 3D bioprinting innovation and the patentability hurdle: Patents. *Nature Biotechnology, 43*(5), 677–683.

14 **El Salamouni, N. S.,** Cater, J. H., Spenkelink, L. M., & **Yu, H.** (2025). Nanobody engineering: computational modelling and design for biomedical and therapeutic applications. *FEBS Open Bio, 15*(2), 236–253.

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48 **Watson, M. L., Stilgoe, A. B.,** Favre-Bulle, I. A., & **Rubinsztein-Dunlop, H.** (2025). Interrogating the ballistic regime in liquids with rotational optical tweezers. *Optica, 12*(2), 246.

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51 **Zhu, Q., Raza, Z., Do- Ha, D., De Costa, E., Sasheva, P., McAlary, L., Mahmodi, H., Bowen, W. P., Ooi, L., Kabakova, I.,** & **Yu, H.** (2025). Biomolecular Condensates as Emerging Biomaterials: Functional Mechanisms and Advances in Computational and Experimental Approaches. *Advanced Materials (Weinheim), 37*(36), e10115-n/a.

BOOKS

1 **Devarapalli, P.** (2025). *Bioinked Boundaries: Patenting 3D Bioprinted Tissues, Organs and Bioinks: an US, European and Australian Patent Law Perspective* (1st ed.). Springer.

CONFERENCE PAPERS

1 Baldoni, P., Dias, P. S., Dite, T., Venugopal, H., Noh, Y., Keenan, C., Gurzau, A., Leis, A., Yousef, J., Vaibhav, V., Dagley, L. F., Ang, C.-S., Corso, L., Davidoch, C., Vervoort, S., Smyth, G., Blewitt, M., Allan, R., D'Arcy, S., **Hinde, E.,** Ryu, J.-K., & Shakeel, S. (2025). *From atomic interactions to cellular dynamics: Multiscale insights into MORC2 function.*

2 **Bowen, W. P.** (2025). *Towards biomolecular optomechanics. In Quantum Effects and Measurement Techniques in Biology and Biophotonics II* (Proc. SPIE PC13340, Paper PC1334003).

3 Gill, E. T., **Mlodzianoski, M. J.,** Lekkala, S., *et al.* (2025). *Ex-SCAPE: Fast volumetric imaging of expanded biological samples using oblique plane light sheet microscopy. APMC 2025 Conference Proceedings.*

4 **Jones, M.** (2025) *Hamiltonian-moments-based ground-state-energy estimation, IPAM Mathematical and Computational Challenges in Quantum Computing* Reunion Conference, September, Los Angeles, CA

5 **Jones, M.** (2025) *Moments-based quantum chemical calculations on a quantum compute*, Qiskit Fall Fest, October, Melbourne, VIC

6 **Jones, M.** (2025) *Moments-based quantum computed chemistry* IBM Healthcare and Life Sciences Working Group Meeting, November, Brisbane, Qld

7 **Jones, M.** (2025) *Moments-based ground-state energy estimation for pre-fault tolerant quantum hardware and beyond* Australian Institute of Physics Summer Meeting, November, Wollongong, NSW (book-of-abstracts.pdf)

8 **Mahmodi, H., Wooden, K.,** Poulton, C., & **Kabakova, I. V.** (2025). *Principal component analysis for application to Brillouin microscopy data. In Optical Elastography and Tissue Biomechanics XII* (Proc. SPIE PC13321, Paper PC133210L).

9 **Mohammadi, M., Ahmadalidokht, I., Sadraeian, M.,** McClements, L., Poulton, C. G., **Kabakova, I.,** & **Solntsev, A. S.** (2025). *Spectroscopy with undetected photons for biomedical diagnostics in mid-infrared. Conference on Lasers & Electro-Optics Europe & International Quantum Electronics Conference (Online),* 1–1.

10 **Ooi, L.** (2025) *Drug Discovery Rewired: on the hunt for neuroprotective compounds that target excitability changes in MND* Australasian Neuroscience Society, February, Hobart, TAS

11 **Ooi, L.** (2025) *Reversal of phenotypes in ALS iPSC-derived motor neurons* PACTALS 2025, September, Melbourne, VIC

12 **Ooi, L.** (2025) Alterations in ion homeostasis in late-onset Alzheimer's Disease induced pluripotent stem cell-derived neurons and microglia, Australian Dementia Forum ADRF, June, Perth, WA

13 **Sanchez Velasquez, J., Sun, T.,** & **Hinde, E.** (2025). *Pair correlation microscopy of heterotrimeric transcription factor transport.*

14 **Simpson, D.** (2025) *Sub-micron imaging of neuronal action potentials by defect charge-state conversion in diamond* The 63rd Annual Meeting of the Biophysical Society of Japan, September, Nara, Japan

15 **Simpson, D.** (2025) *Diamond quantum sensors for iron load quantification of ferritin proteins* The 63rd Annual Meeting of the Biophysical Society of Japan, September, Nara, Japan

16 **Terrasson, A., Mauranyapin, N. P.,** Casacio, C. A., Grim, J. Q., Barnscheidt, K., Hage, B., Taylor, M. A., & **Bowen, W. P.** (2025). *Nonlinear quantum bioimaging with bright squeezed light. Progress in Biomedical Optics and Imaging – Proceedings of SPIE,* 13340.

17 **Watson, M. L., Grant, P.,** Favre-Bulle, I. A., **Stilgoe, A. B.,** & **Rubinsztein-Dunlop, H.** (2025). *Studies of non-equilibrium systems using rotational ballistic tweezers. Proceedings of SPIE.*

18 **Zhou, J.** (2025) *Nanoparticles and their role in biomedical imaging and sensing* 2025 Word congress on Orthopaedic Research, October, Adelaide, SA

19 **Zhou, J.** (2025) *Quantum Upconversion Nanoparticles for Temperature Sensing and Rapid Diagnostics* International Conference on Chemical and Biosensor Technologies 2025, November, Bangkok, Thailand

Conference & Workshop Participation

INCLUDES INVITED, KEYNOTE, PLENARY TALKS

Abhay Sharma	**Poster Presenter:** Representation of Halogens in Empirical Force Fields, qLIFE 2025, September, Wollongong, NSW
Professor Alan Mark	**Session Chair:** Computational Biology Symposium, The Australian Society of Biochemistry and Molecular Biology Conference 2025 (ASBMB2025), September, Brisbane, Qld
Professor Alexander Solntsev	**Invited Speaker:** PIERS 2025, May, Abu Dhabi, United Arab Emirates
Professor Alexander Solntsev	**Invited Speaker:** Discussant on Quantum Collaboration, APEC Forum for Quantum Science and Technology, October, Gwangju, Korea
Professor Alexander Solntsev	**Poster presenter:** Quantum Australia 2025, March, Brisbane, Qld
A/Professor Allison Fish	**Invited Speaker:** Invited Respondent: Session 4, 25 June 2025, International Society for the History and Theory of Intellectual Property 16th Annual Workshop, June, Madrid, Spain
A/Professor Allison Fish	**Invited Speaker:** Social, Legal and Regulatory Issues Emerging from Frontier Science: A Case Study of Quantum Biotechnology, College of Information Science Colloquium Series: https://infosci.arizona.edu/events/2025/allison-fish, September, Tucson, AZ
A/Professor Allison Fish	**Invited Speaker:** Facilitating a Responsible Quantum Community, Centre for Materials Interfaces in Research and Applications (MIRA), September, Flagstaff, AZ
A/Professor Allison Fish	**Workshop Presenter / Lecturer:** Program Organising Committee & Activity Lead (Yoga Nidra), inSTEM 2025, May, Melbourne, Vic
Dr Anjay Manian	**Invited Speaker:** Vibronic Contributions to Hyperfine-mediated Spin Kinetics, QUBIC Symposium, November, Wollongong, NSW
Callum Macfarlane	**Invited Speaker:** Multifit Partial Charges: Everything, From Everywhere, All at Once, BIOMOS 2025, September, Innsbruck, Austria
Callum Macfarlane	**Poster Presenter:** Multifit Atomic Partial Charges for Paramaterising MD simulations, International Autumn School on CP2K-GROMACS for Multiscale Atomistic Simulation, Paderborn, Germany
Callum Macfarlane	**Workshop Presenter / Lecturer:** Multifit Atomic Partial Charges for Paramaterising MD simulations, QUBIC Winter school 2025, Katoomba, NSW
Dr Daniel McCloskey	**Invited Speaker:** Imaging Neuronal Action Potentials by Defect Charge Conversion in Diamond, 18th International Conference on New Diamond and Nano Carbons (NDNC2025), May, Beppu, Japan
Dr Daniel McCloskey	**Invited Speaker:** Sub-micron Imaging of Neuronal Action Potentials by Defect Charge-state Conversion In Diamond, The 63rd Annual Meeting of the Biophysical Society of Japan, September, Nara, Japan
A/Professor David Simpson	**Invited Speaker:** Imaging Neuronal Action Potentials by Defect Charge Conversion in Diamond, 20th International Conference on New Diamond and Nano Carbons (NDNC2025), May, Beppu, Japan
A/Professor David Simpson	**Invited Speaker:** Sub-micron Imaging of Neuronal Action Potentials by Defect Charge-state Conversion In Diamond, The 63rd Annual Meeting of the Biophysical Society of Japan, September, Nara, Japan

A/Professor David Simpson	**Invited Speaker:** Quantum Biosensing and Imaging with Spin Defects in Diamond, GRC Quantum Sensing: Diversity of Sensing Architectures for New Physics and Real-World Applications, July, Les Diablerets, Vaud (fr), Switzerland
A/Professor David Simpson	**Invited Speaker:** Diamond Quantum Sensors for Iron Load Quantification of Ferritin Proteins, The 63rd Annual Meeting of the Biophysical Society of Japan, September, Nara, Japan
A/Professor David Simpson	**Invited Speaker:** Advanced Technologies for Life and Planet, Q^{x} | Queensland's Advanced Technologies Future, October, Brisbane, Qld
A/Professor David Simpson	**Invited Speaker:** Diamond Quantum Sensors for Precision Diagnostics and Drug Discovery, qLIFE 2025, November, Wollongong, NSW
A/Professor David Simpson	**Session Chair:** Japan-Australia-Taiwan Trilateral Symposium: New Frontiers in Biological Measurement Enabled by Quantum Life Science (International Quantum Science and Technology Year Commemorative Symposium), The 63rd Annual Meeting of the Biophysical Society of Japan, September, Nara, Japan
Dr Dzung Do-Ha	**Session Chair:** Q&A with Professor. Michael Biercuk, Founder & CEO, Q-CTRL, QUBIC Winter School and Joint Themes workshop, April, Sydney, NSW
Dr Dzung Do-Ha	**Workshop Presenter / Lecturer:** Divergent Neuronal Excitability Profiles on a Single-cell and Synaptic Network Level in iPSC-derived Motor Neurons from sALS Patients, ASSCR NSW ECR Symposium, June, Sydney, NSW
Dr Dzung Do-Ha	**Workshop Presenter / Lecturer:** Probing the Electrochemical Landscape of Stress Granules – Implications for Neuronal Excitability in ALS, QUBIC Winter School and Joint Themes workshop, May, Katoomba, NSW
Dr Dzung Do-Ha	**Workshop Presenter / Lecturer:** Divergent Neuronal Excitability Profiles on a Single-cell and Synaptic Network Level in iPSC-derived Motor Neurons from sALS Patients, Molecular Horizons ECR Symposium, September, Wollongong, NSW
Dr Dzung Do-Ha	**Workshop Presenter / Lecturer:** Divergent Neuronal Excitability Profiles on a Single-cell and Synaptic Network Level in iPSC-derived Motor Neurons from sALS Patients, PACTALS 2025, September, Melbourne, Vic
Dr Dzung Do-Ha	**Workshop Presenter / Lecturer:** From Single Neurons to Networks: Using Stem Cell Models and Quantum Sensors to Uncover Excitability Changes in MND, UoW ECR Conference, May, Wollongong, NSW
Dr Dzung Do-Ha	**Workshop Presenter / Lecturer:** Probing the Electrochemical Landscape of Stress Granules – Implications for Neuronal Excitability in ALS, QUBIC Symposium, November, Wollongong, NSW
Dr Dzung Do-Ha	**Workshop Presenter / Lecturer:** Divergent Neuronal Excitability Profiles on a Single-cell and Synaptic Network Level in iPSC-derived Motor Neurons from sALS Patients, Cellular and Molecular Advances in Neurodegeneration (CAMAND), April, Hobart, Tas
Dr Eleanor Trimby	**Panellist:** Panel: From Lab to Legacy – Quantum Innovation for Brisbane 2032, Q^{x} | Queensland's Advanced Technologies Future, October, Brisbane, Qld
A/Professor Elizabeth Hinde	**Invited Speaker:** The 12th International Weber Symposium on Innovative Fluorescence Methodologies in Biochemistry and Medicine, June, Genoa, Italy
A/Professor Elizabeth Hinde	**Invited Speaker:** Pair Correlation Microscopy of Heterotrimeric Protein Transport, 13th Asia Pacific Microscopy Conference (APMC13), February, Brisbane, Qld

A/Professor Elizabeth Hinde	**Invited Speaker:** The Phasor Approach to Fluorescence Lifetime Analysis of Biosensor Förster Resonance Energy Transfer (FRET), Fluorescence imaging beyond intensity, August, Heidelberg, Germany
A/Professor Elizabeth Hinde	**Invited Speaker:** Histone FRET of Chromatin Structure and Dynamics, 19th Conference on Methods and Application in Fluorescence, August, Montreal, Canada
A/Professor Elizabeth Hinde	**Organiser:** Pair Correlation Microscopy of Intracellular Molecular Transport, Fluorescence correlation and fluctuation spectroscopy workshop, November, Melbourne, Vic
A/Professor Elizabeth Hinde	**Organiser:** Pair Correlation Microscopy of Transcription Factor DNA Target Search, Single Molecule Chromatin Symposium, November, Perth, WA
A/Professor Elizabeth Hinde	**Session Chair:** Platform on Super Resolution and Optical Microscopy, US Biophysical Society Annual Meeting, February, Los Angeles, CA
Professor Haibo Yu	**Invited Speaker:** Mechanism-Based Design of Potent Inhibitors and High-Performance Sensors, Frontier in Computational Chemistry, Biophysics, and Biological Sciences, October, Shenzhen, China
Professor Haibo Yu	**Invited Speaker:** Multiscale Modelling to Design Potent Inhibitors and High-performance Biosensors, 11th Conference of the Asia-Pacific Association of Theoretical and Computational Chemists, April, Kobe, Japan
Professor Haibo Yu	**Invited Speaker:** Combine Physics-based Simulations and AI/ML Models to Design High-performance Biosensor, PacifiChem2025, February, Hawaii, USA
Professor Haibo Yu	**Keynote Speaker:** Computational enzymology: mechanistic studies and molecular design, The Australian Society of Biochemistry and Molecular Biology Conference 2025 (ASBMB2025), September, Brisbane, Qld
Professor Halina Rubinsztein-Dunlop	**Invited Speaker:** Quantum Biotechnology How and Why, Celebrating 100 Years of Quantum Science, May, Ottawa, Canada
Professor Halina Rubinsztein-Dunlop	**Invited Speaker:** My Journey and Quantum Biotechnology How and Whyy, SPIE Biophotonics Summer School 2025, June, Ven, Sweden
Professor Halina Rubinsztein-Dunlop	**Invited Speaker:** Quantum Biotechnology – Why and How, 47th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2025), July, Copenhagen, Denmark
Professor Halina Rubinsztein-Dunlop	**Invited Speaker:** Probing Non-equilibrium Dynamics with Active Matter Towards Studies of Non- Equilibrium Systems using Rotational Ballistic tweezers. Also panel chair, SPIE Optics & Photonics 2025, August, San Diego, CA
Professor Halina Rubinsztein-Dunlop	**Invited Speaker:** Sculpted Light in Nano and Microsystems, Max Plank Institute, July, Germany
Professor Halina Rubinsztein-Dunlop	**Invited Speaker:** Quantum Biotechnology, Max Plank Institute, July, Germany
Professor Halina Rubinsztein-Dunlop	**Invited Speaker:** Translating Research Systematising Serendipity, Quantum Australia, March, Brisbane, Qld
Professor Halina Rubinsztein-Dunlop	**Invited Speaker:** Structure Light in Mechanobiology, Structures and Chiral Light Fields for Interdisciplinary Science, February, Adelaide, SA

Professor Halina Rubinsztein-Dunlop	**Panellist:** International Quantum Initiatives Panel, Rank Symposium, March, Lake District, UK
Professor Halina Rubinsztein-Dunlop	**Panellist:** Future of Quantum Biotechnology, SPIE Photonics West 2025, January, San Francisco, CA
Professor Halina Rubinsztein-Dunlop	**Invited Speaker:** Structure Light in Mechanobiology, SPIE Photonics West 2025, January, San Francisco, CA
Professor Halina Rubinsztein-Dunlop	**Session Chair:** Strategy session- Health research, Q^{x} | Queensland's Advanced Technologies Future, March, Brisbane, Qld
Professor Halina Rubinsztein-Dunlop	**Invited Speaker:** Non-equilibrium Measurements of Active Matter Systems Using Rotational Optical Tweezers, Australian and New Zealand Conference on Optics and Photonics (ANZCOP) conference, December, Auckland, NZ
Holden Paz	**Poster Presenter:** Exploring the Selectivity of ClpS through Computational Thermodynamic and Kinetic Studies, QUBIC Symposium, November, Wollongong, NSW
Professor Irina Kabakova	**Invited Speaker:** SPIE Photonics West 2025, January, San Francisco, CA
Professor Irina Kabakova	**Invited Speaker:** Central Coast Local Health District Research and Innovation Symposium, February, Gosford, NSW
Professor Irina Kabakova	**Invited Speaker:** Australian and New Zealand Conference on Optics and Photonics (ANZCOP), December, Auckland, NZ
Dr Jesse Slim	**Invited Speaker:** Protein Optomechanics to Probe Vibration-Enabled Biological Function, Gordon Research Conference: Label-Free Approaches to Observe Single Biomolecules for Biophysics and Biotechnology, June, Easton, MA
Professor Jiajia Zhou	**Invited Speaker:** Nanoparticles and Their Role in Biomedical Imaging and Sensing, International Combined Orthopaedic Research Societies 2025 World Congress of Orthopaedic Research (ICORS Congress 2025), October, Adelaide, SA
Professor Jiajia Zhou	**Invited Speaker:** Quantum Upconversion Nanoparticles for Temperature Sensing and Rapid Diagnostics, International Conference on Chemical and Biosensor Technologies 2025, November, Bangkok, Thailand
Professor Jiajia Zhou	**Keynote Speaker:** Nanoparticles and Their Role in Biomedical Imaging and Sensing, 2025 Word congress on of Orthopaedic Research, October, Adelaide, SA
Jiawa Wang	**Poster Presenter:** Probing the Enzyme Ensemble of Ketosteroid Isomerase via Computational Ensemble Analysis, Australian Winter School on Computational Chemistry, July, Kiama, NSW
Jiawa Wang	**Poster Presenter:** Probing the Enzyme Efficiency of Ketosteroid Isomerase via Experimental and Computational Ensemble Analysis, QUBIC Symposium, November, Wollongong, NSW
Dr Jieqiong Lou	**Organiser:** Pair Correlation Microscopy of Transcription Factor DNA Target Search, Single Molecule Chromatin Symposium, November, Perth, WA
Dr Leo Zhang	**Invited Speaker:** 7th Annual Young Scientists' Forum, October, Hangzhou, China
Dr Leo Zhang	**Invited Speaker:** 2025 Conference on Organelles Diagnostics and Therapy, EIT, China, October, Ningbo, China
Professor Lezanne Ooi	**Session Chair:** Quantum meets Biotech, October, Melbourne, Vic

Professor Lezanne Ooi	**Invited Speaker:** Drug Discovery Rewired: On the Hunt for Neuroprotective Compounds That Target Excitability Changes in MND, Australasian Neuroscience Society, February, Hobart, Tas
Professor Lezanne Ooi	**Invited Speaker:** Reversal of Phenotypes in ALS iPSC-derived MotorNeurons, PACTALS 2025, September, Melbourne, Vic
Professor Lezanne Ooi	**Invited Speaker:** Molecular Drivers and Pathways to Drug Discovery for Motor Neuron Disease, n/a, September, Sydney, NSW
Professor Lezanne Ooi	**Invited Speaker:** Neuronal and Glial Phenotypes of ALS and FTD, n/a, January, Adelaide, SA
Professor Lezanne Ooi	**Invited Speaker:** Alterations in Ion Homeostasis in Late-Onset Alzheimer's Disease Induced Pluripotent Stem Cell-Derived Neurons and Microglia, Australian Dementia Forum ADRF, June, Perth, WA
Professor Lezanne Ooi	**Invited Speaker:** Using Brain Organoids to Model Disease, Australasian course in advanced neuroscience, January, Sydney, NSW
Professor Lloyd Hollenberg	**Invited Speaker:** Quantum Computers – Approaching Fast, PHYSCON 2025, February, Melbourne, Vic
Professor Lloyd Hollenberg	**Invited Speaker:** Quantum Computers – Approaching Fast, AAS 2025 Lloyd Rees Lecture, June, Clayton, Vic
Ms Mahya Mohammadi	**Invited Speaker:** Quantum Spectroscopy in the Mid-IR, CLEO/Europe-EQEC 2025, June, Munich, Germany
Dr Marita Rodriguez	**Invited Speaker:** The Politics of Authorship: Power, Credit, and the Social Structures of Science, Australasian Science and Technology Studies Network Conference (AusSTS 2025: Signals & Noises, July, Melbourne, Vic
Dr Martin Stroet	**Invited Speaker:** Parameterisation of Canonical and Non-Canonical Amino Acids for NMR Structure Determination, ANZMAG 2025, December, Brisbane, Qld
Dr Martin Stroet	**Invited Speaker:** Modelling Biomolecular Systems in Atomic Detail, QUBIC Molecules Theme Monthly Seminars, June, Brisbane, Qld
Dr Michael Jones	**Invited Speaker:** Hamiltonian-moments-based Ground-state-energy Estimation, IPAM Mathematical and Computational Challenges in Quantum Computing Reunion Conference, September, Los Angeles, CA
Dr Michael Jones	**Invited Speaker:** Qiskit Fall Fest 2025: Workshop II – Real-World Use Cases with Qiskit, Qiskit Fall Fest, February, Melbourne, Vic
Dr Michael Jones	**Invited Speaker:** Moments-based Quantum Chemical Calculations on a Quantum Computer, Qiskit Fall Fest, October, Melbourne, Vic
Dr Michael Jones	**Invited Speaker:** Moments-based Quantum Computed Chemistry, IBM Healthcare and Life Sciences Working Group Meeting, November, Brisbane, Qld
Dr Michael Jones	**Invited Speaker:** Moments-based Ground-state Energy Estimation for Pre-fault Tolerant Quantum Hardware and Beyond, Australian Institute of Physics Summer Meeting, November, Wollongong, NSW
Professor Michelle Coote	**Plenary Presenter:** Directing Chemical Reactions with Electric Fields, Molecular Modelling 2025 Conference, December, Melbourne, Vic

Professor Michelle Coote	**Plenary Presenter:** Directing Chemical Reactions with Electric Fields: Applications in Polymer Chemistry, The 2nd Australian Materials Chemistry Conference (AMCC25), November, Gold Coast, Qld
Professor Michelle Coote	**Plenary Presenter:** Directing Chemical Reactions with Electric Fields, International Conference of Computational Organic-synthesis Catalysis 2025, October, Shenzhen, China & Virtual
Dr Nehad Elsalamouny	**Poster Presenter:** Mechanistic Insights into Nanobody-based Quenchbody Sensing via Structural Modelling and Molecular Simulations, QUBIC Symposium, November, Wollongong, NSW
Dr Nehad Elsalamouny	**Poster Presenter:** Mechanistic Insights into Nanobody-based Quenchbody Sensing via Structural Modelling and Molecular Simulations, MM2025, December, Melbourne, Vic
Dr Nikolai Dontschuk	**Invited Speaker:** Imaging Neuronal Action Potentials by Defect Charge Conversion in Diamond, 19th International Conference on New Diamond and Nano Carbons (NDNC2025), May, Beppu, Japan
Dr Nikolai Dontschuk	**Invited Speaker:** Sub-micron Imaging of Neuronal Action Potentials by Defect Charge-state Conversion in Diamond, The 63rd Annual Meeting of the Biophysical Society of Japan, September, Nara, Japan
Dr Nisha Mehta	**Session Chair:** Computational Biology Symposium, The Australian Society of Biochemistry and Molecular Biology Conference 2025 (ASBMB2025), September, Brisbane, Qld
Dr Nisha Mehta	**Invited Speaker:** Modelling Biomolecular Systems in Atomic Detail, QUBIC Molecules Theme Monthly Seminars, June, Brisbane, Qld
Dr Nisha Mehta	**Session Chair:** Computational Biology Symposium, The Australian Society of Biochemistry and Molecular Biology Conference 2025 (ASBMB2025), September, Brisbane, Qld
Dr Pavlina Naydenova	**Session Chair:** Q&A with Professor. Michael Biercuk, Founder & CEO, Q-CTRL, QUBIC Winter School and Joint Themes workshop, April, Sydney, NSW
Dr Pedram Rashidi	**Invited Speaker:** Anticipatory Governance and the Regulation of Quantum-driven Decarbonisation in Queensland, Society for Social Studies of Science (4S 2025), September, Seattle, WA
Dr Pratap Devarapalli	**Invited Speaker:** Bioinked Boundaries: Patenting 3D Bioprinting Innovations in US, Europe, and Australia, IP Researchers Europe Conference (IPRE) 2025, June, Geneva, Switzerland
Dr Pratap Devarapalli	**Invited Speaker:** Bioinked Boundaries: Is 3D Bioprinting Innovation Falling Down at the Patentability Hurdle? June, Munich, Germany
Dr Qiang Zhu	**Poster Presenter:** Revisiting N-Terminal Chirality and Mutation-Induced Conformational Changes in Amyloid-beta 42, MM2025, December, Melbourne, Vic
Dr Qiang Zhu	**Poster Presenter:** Revisiting N-Terminal Chirality and Mutation-Induced Conformational Changes in Amyloid-beta 42, QUBIC Symposium, November, Wollongong, NSW
Rachael Birks	**Workshop Presenter / Lecturer:** Program Organising Committee & Activity Lead, inSTEM 2025, May, Melbourne, Vic

Professor Warwick Bowen	**Invited Speaker:** Future of Quantum in Healthcare, Queensland Health Research Excellence Showcase 2025, May, Brisbane, Qld
Professor Warwick Bowen	**Invited Speaker:** Quantum Meets Decarbonisation, October, Brisbane, Qld
Professor Warwick Bowen	**Invited Speaker:** Queensland's Quantum Decarbonisation Efforts Panel Member, Q^{x} | Queensland's Advanced Technologies Future, October, Brisbane, Qld
Professor Warwick Bowen	**Invited Speaker:** Queensland's Quantum Decarbonisation Efforts Panel Member, Q^{x} | Queensland's Advanced Technologies Future, October, Brisbane, Qld
Professor Warwick Bowen	**Invited Speaker:** Industry forum, Australian and New Zealand Conference on Optics and Photonics (ANZCOP), December, Auckland, NZ
Professor Warwick Bowen	**Invited Speaker:** Technology and Theory at the Intersection of Quantum Science and Biological Mechanisms, Gordon Research Conference on Quantum Biology, March, Tuscany, Italy
Professor Warwick Bowen	**Invited Speaker:** Towards Quantum Control of Proteins, Bristol Quantum Information Technologies Workshop, April, Bristol, UK
Professor Warwick Bowen	**Invited Speaker:** Superfluid Coated Nanophotonics: Non-linear Waves and Soliton, Frontiers of Nanomechanical Systems NTT, June, Atsugi, Japan
Professor Warwick Bowen	**Invited Speaker:** Stepping Off the Ledge: Quantum, AI Technologies and the Future of DrugDiscovery, BioMelbourne Network Forum, June, Melbourne, Vic
Professor Warwick Bowen	**Invited Speaker:** QUBIC Winter School with EMCR's, QUBIC Winter School and Joint Themes workshop, August, Katoomba, NSW
Professor Warwick Bowen	**Invited Speaker:** Quantum Enhanced Optical Spectroscopy, Stanford Quantum Biosensing workshop, August, Stanford, CA
Professor Warwick Bowen	**Invited Speaker:** Can Quantum Sensing and Quantum Computing, Together, Close the Gap in Understanding Protein Dynamics?, Health, Care, and Life Science Asia Pacific Region, October, Brisbane, Qld
Professor Warwick Bowen	**Invited Speaker:** Quantum-limited and Quantum-enhanced Imaging of Cell Activity, Quantum Sensing Science Conference, October, Melbourne, Vic
Professor Warwick Bowen	**Organiser:** Label-free Approaches to Observe Single Biomolecules for Biophysics and Biotechnology, Gordon Research Conference: Label-free Approaches to Observe Single Biomolecules for Biophysics and Biotechnology, June, Easton, MA
Professor Warwick Bowen	**Organiser:** Diversity of Sensing Architectures for New Physics and Real-World Applications, GRC Quantum Sensing: Diversity of Sensing Architectures for New Physics and Real-World Applications, July, Les Diablerets, Vaud (fr), Switzerland
Professor Warwick Bowen	**Organiser:** ANZCOP Industry Forum, ANZCOP 2025, December, Auckland, NZ
Professor Warwick Bowen	**Panellist:** SPIE Photonics West Conference, International Society for Optics and Photonics, January, San Francisco, CA
Professor Warwick Bowen	**Panellist:** What are the Biggest Opportunities for Quantum Technologies to Help Us Achieve Net Zero?, Quantum Australia 2025, March, Brisbane, Qld
Professor Warwick Bowen	**Panellist:** Quantum Technologies and Their Applications in Biomedicine, Sanofi Translational Science Hub Symposium 2025, April, Brisbane, Qld

Professor Warwick Bowen	**Panellist:** Concussion: A Complex Issue to Get Your Head Around panel session, Global Sport University Network, September, Brisbane, Qld
Professor Warwick Bowen	**Plenary Presenter:** Quantum Technology for Biosensing and Imaging, Spanish and Portuguese Advanced Optical Microscopy, November, Braga, Portugal
Professor Warwick Bowen	**Session Chair:** Quantum Enhanced Optical Spectroscopy, Quantum Sensing for Biological and Medical Research Workshop, August, Stanford, CA
Professor Warwick Bowen	**Session Chair:** Bridging Quantum technology and medtech, Aus MedTech Sydney, May, Sydney, NSW
Zahra Raza	**Poster Presenter:** Multiscale Simulations of TDP-43, MM2025, December, Melbourne, Vic
Zahra Raza	**Poster Presenter:** Multiscale Simulations of TDP-43, QUBIC Symposium, November, Wollongong, NSW
Zhipeng Pei	**Workshop Presenter / Lecturer:** Unveiling the Diradical Nature of Quinodimethanes: Insights into Their Role in Organic Chemistry, 11th Conference of the Asia-Pacific Association of Theoretical and Computational Chemists (APATCC-11), April, Kobe, Japan

Scholarships, Fellowships & Awards 2025

SCHOLARSHIPS AND FELLOWSHIPS 2025

Name	Scholarship / Fellowship
Dr Alana Brekelmans	Writer's Fellowship, Ventspils International Writers' and Translators' House
Dr Mina Barzegaramiriolya	Aspire Early Career Research Fellowship, Single Protein Functionalisation for Enhanced Quantum Sensing Applications, QUBIC
Dr Nicolas Mauranyapin	QUBIC x DETSI Fellowship, Quantum red light therapy for honeybees: field application and in-vitro study, Qld Government Department of Environment, Tourism, Science and Innovation
Dr Nisha Mehta	McKenzie Fellowship, University of Melbourne
Stow Lab	QUBIC x DETSI PhD Scholarship, Increased threat of infectious bacteria in the environment imposed by climate change: Protecting Australian animal and human populations from heat-tolerant E. coli., Qld Government Department of Environment, Tourism, Science and Innovation
Dr Qiang Zhu	Vice Chancellor's Research Fellowship, Physics and Data-Driven Approaches for Biomolecular Condensates, University of Wollongong

QUBIC AWARDS

These awards recognise excellence across research, collaboration, engagement, and leadership because QUBIC's success is built on the passion and commitment of its people. From groundbreaking science to inspiring outreach, these achievements reflect the spirit of innovation and collaboration that drives our mission to bring quantum to life.

Name	Award
Professor Alexander Solntsev	Research Translation Pioneer Award
A/Prof Allison Fish	Mentor Award
Angela Hermann	Poster - People's Choice Award
Dr Daniel McCloskey	Scientific Achievement in the Brain Theme
Dr Daniel McCloskey	Poster - 3rd Place
Dr Daniel McCloskey	Research and Translation Award
Dhilan Vallury	Superstars of Outreach Award
Dr Dzung Do-Ha	Outstanding Collaborative Paper
Dr Dzung Do-Ha	Outstanding Team Project
Dr Dzung Do-Ha	Scientific Achievement in the Brain Theme
Dr Dzung Do-Ha	Rising Star
Dr Eleanor Trimby	3MT Best Talk
Emma De Costa	Cross-Nodal Collaboration Award
Emma De Costa	Outstanding Collaborative Paper

Name	Award
Hadi Mahmodi	Outstanding Collaborative Paper
Professor Haibo Yu	Outstanding Collaborative Paper
Professor Haibo Yu	Outstanding Team Project
Holden Paz	Outstanding Team Project
Hunter Johnson	Superstars of Outreach Award
Professor Irina Kabakova	Research Translation Pioneer Award
Dr Isa Ahmadalidokht	Research Translation Pioneer Award
Kyle Clunies-Ross	Poster - 1st Place
Professor Lezanne Ooi	Director's Award
Professor Lezanne Ooi	Outstanding Collaborative Paper
Luke McAlary	Outstanding Collaborative Paper
Mahya Mohammadi	Research Translation Pioneer Award
Mahya Mohammadi	3MT People's Choice
Mahya Mohammadi	Advancing Equity Award
Dr Marita Rodriguez	Outstanding Team Project
Dr Martin Sadraeian	Poster - 2nd Place
Dr Martin Sadraeian	Outstanding Team Project
Dr Martin Stroet	Scientific Achievement in the Molecule Theme
Dr Meryem-Nur Duman	Research Translation Pioneer Award
Professor Michelle Coote	Outstanding Team Project
Dr Nicolas Mauranyapin	Scientific Achievement in the Cell Theme
Dr Pavlina Naydenova	Ambassador Award
Dr Pavlina Naydenova	Outstanding Collaborative Paper
Dr Qiang Zhu	Outstanding Collaborative Paper
Shikun Ma	Superstars of Outreach Award

OTHER AWARDS

Name	Award
Angela Hermann	Outstanding Academic Achievement, Women in Physics Prize, University of Melbourne
Dr Anjay Manian	MM2025 Travel Awards, AMMA
A/Professor David Simpson	ANFF-VIC Technology Fellow Ambassador, Melbourne Centre for Nanofabrication
Dhilan Vallury	Best experimental MSc Thesis, Klein Prize in Experimental Physics, University of Melbourne
Dhilan Vallury	Outstanding Academic Achievement, John-Tyndall and Dieul-Kurzweil Scholarship, University of Melbourne
Dr Dzung Do-Ha	Best Post-doc Platform Presentation Prize, Australasian Society for Stem Cell Research (ASSCR)
Dr Dzung Do-Ha	ECR Selected Talks, CAMAND Presentation Award, Cellular and Molecular Advances in Neurodegeneration
A/Professor Elizabeth Hinde	The Michael and Kate Bárány Award for exceptional work in biophysics, Biophysical Society
A/Professor Elizabeth Hinde	ARC College of Experts, Australian Research Council
Professor Halina Rubinsztein-Dunlop	2025 Spie Gold Medal for work in optical micromanipulation.
Professor Halina Rubinsztein-Dunlop	Waernska Visiting Professorship Prize, University of Gothenburg
Hunter Johnson	Best Poster Award, Koala Poster Prize 2025, Koala
Professor Jeffrey Reimers	Gold Magnolia Award, Shanghai Government
Jiawa Wang	MM2025 Travel Awards, AMMA
Professor Lloyd Hollenberg	Wellcome Leap Program, Wellcome Sanger Institute
Dr Martin Stroet	HDR Supervision Excellence Award, School of Chemistry and Molecular Biosciences, UQ
Professor Michelle Coote	Association of Molecular Modellers of Australasia Medal
Dr Nehad Elsalamouny	MM2025 Travel Awards, AMMA
Dr Nehad Elsalamouny	EMCR Award, Theo Murphy Initiative Participation Support Grant, AAS
Dr Nehad Elsalamouny	Travel awards, Professional Development Fund for Carers, UoW
Dr Nisha Mehta	AMMA Naomi Haworth Early Career Award, The Association of Molecular Modellers of Australasia
Dr Qiang Zhu	MM2025 Travel Awards, AMMA
Zahra Raza	Presentation Prize, Australian Winter School on Computational Chemistry

Held by the Centre

WORKSHOPS & CONFERENCES 2025

Date (2025)	Workshop / Conference
14 Apr	Workshop: Hologram Workshop for kids and families, World Quantum Day, Brisbane
8 – 13 Jun	International Conference: Gordon Research Conference (GRC) on Label-Free Single Molecule Sensing, Massachusetts, USA
4 – 5 Aug	Workshop: QUBIC Winter School, Sydney & Katoomba
6 – 7 Aug	Workshop: QUBIC Joint Themes Workshop, Katoomba
20 Oct	Workshop: Quantum Meets Biotech, Melbourne
27 Oct	Workshop: Quantum Meets Decarbonisation, Brisbane
28 Oct	Workshop: Q^x Summit, Brisbane
17 – 18 Nov	National Conference: QUBIC Annual Symposium, Wollongong
19 – 21 Nov	International Conference on Quantum Technology in the Life Sciences (qLIFE), Wollongong
24 – 26 Nov	National Conference: Quantum Sensing Science Conference (QSSC), Melbourne

SEMINARS, FORUMS AND SCIENTIFIC TALKS 2025

Date (2025)	Presenter	Title
31 Jan	Terry Rudolph	PsiQuantum: Building a photonic quantum computer
7 Feb	Anthea Sun, Alex Wright, Laz Ashcroft, Nicholas Fantham, Lianne Lay	MTD Portfolio Undergrad Summer Internship Presentations
14 Apr	Dr Gavin Jones	An Overview of Quantum Computing Applications at IBM
21 May	Dr Leo Zhang	AI-empowered Live Cell Imaging
27 May	Zahra Raza	Breaking Down Proteins! – Metaphorically
4 Jun	Dr Mike Mlodzianoski	Super Resolution Microscopy of Nuclear Chromatin
18 Jun	Dr Sergey Kruk, Dr Marita Rodriguez, Dr Benjamin Carey	Completing the Connect Initiative
23 Jun	Kyle Clunies-Ross	Decohering Quantum Terminology
2 Jul	Dr Daniel McCloskey	Sub-micron imaging of neuronal action potentials using diamond NV centres
3 Jul	A/Professor Douglas Brumley	Microscale fluid dynamics around coral surfaces
9 Jul	Max Foreman, Dr Jesse Slim, Dr Igor Marinkovic	Biomolecular Optomechanics
22 Jul	Emma De Costa	ABCs of Biology

Date (2025)	Presenter	Title
23 Jul	Dr Gesa Grüning	Intra-protein motion & protein function
6 Aug	Dr Meryem-Nur Duman	Protein biomarkers for cardiovascular disease: FTIR and structural analysis
6 Aug	Hunter Johnson	Impact of NV depth and density on voltage imaging sensitivity
6 Aug	Dhilan Vallury	Characterising the diamond surface for improved quantum sensors
6 Aug	Angela Hermann	Quantum sensing with uniform nanodiamond layers and proteins?
6 Aug	Dr Galya Haim	Towards sensing single [your sample here] with NV centers - looking for collaborations!
6 Aug	Emma De Costa	Investigating the impact of TDP-43 LCD mutations on phase separation
6 Aug	Hadi Mahmodi	TDP-43 condensation measurements using Brillouin microscopy
6 Aug	Dr Anjay Manian	Predicting magnetoreception within protein domains
6 Aug	Zahra Raza	Collective motions and free energy landscape of tubulin
6 Aug	Dr Qiang Zhu	Understanding and fine tuning the propensity of ATP-driven liquid-liquid phase separation with oligolysine
6 Aug	Jiawa Wang	Probing the enzyme efficiency of ketosteroid isomerase via experimental and computational ensemble analysis
6 Aug	Yao Fu	Predicting molecular dynamics force constants using graph neural networks
6 Aug	Callum Macfarlane	Unifying protein and ligand force fields: A new approach to partial charges
6 Aug	Abhay Sharma	Simulating the self-assembly of organic thin-films in atomic detail
6 Aug	Dr Nehad Elsalamouny	Designing protein binders against clinically relevant targets
6 Aug	Holden Paz	How large should the QM region be in QM/MM simulations of solution phase reactions? an adaptive QM/MM study
7 Aug	Dr Isa Ahmadalidokht	Microscopy with undetected photons in the mid-infrared
7 Aug	Mahya Mohammadi	Quantum spectroscopy with undetected photons (modelling)
7 Aug	Marino Lara	Unlabelled imaging of the living activity of cells
7 Aug	Yitong Zhao	Long-term intracellular nanothermometry for live cells
7 Aug	Dr Sergey Kruk	Quantum upconversion microscopy
7 Aug	Dr Daniel McCloskey	Progress on diamond voltage imaging: The journey to 100 cells
7 Aug	Dr Eleanor Trimby	Magnetoencephalography with optomechanical magnetometers: testing for concussion
7 Aug	Fariha Khaliq	Applications of quantum technologies in understanding tau biology and Alzheimer's disease pathogenesis
7 Aug	Dr Dzung Do-Ha	Using quantum tools to investigate neurodegenerative diseases

Date (2025)	Presenter	Title
7 Aug	Zuzana Leova	Quantum computing for biological insight: Opportunities in omics data analysis
7 Aug	Chengyi Ma	Benchmarking multivariate methods for integrating imaging and omics dataset
7 Aug	Dr Michael Jones	Directions for ground-state energy estimation through quantum-computed Hamiltonian moments
7 Aug	Dr Jesse Slim	Protein optomechanics to probe vibration-enabled function
7 Aug	Kyle Clunies-Ross	Structured detection microscopy
7 Aug	Jack Moody	Leveraging photon correlations for improved fluorescence imaging
7 Aug	Jackson Lucas	Ballistic optical tweezers for measuring fast protein-receptor binding dynamics
7 Aug	Beng Jiong Ang	Understanding sub-terahertz acoustic Raman modes in proteins
7 Aug	Patrick Grant	Studying active matter as non-equilibrium systems
20 Aug	Dr Saree Alnaghy	Advanced Imaging in Cancer Radiotherapy
3 Sep	Dr Juan Li	Australian National Fabrication Facility
17 Sep	Rodney Appleby	A Life in Orica R&D
17 Sep	Professor Kathryn Stok	Exploring the Cartilage Micromechanical Environment
17 Sep	Professor Kim-Anh Lê Cao	Using Multivariate Statistics
30 Sep	Dr Pavlina Naydenova	Proteins, Reductionism, and Function-Dynamics Interplay
26 Sep	A/Professor Joana Perera	How is Your Brain Aging?
8 Oct	Professor Jennifer Stow	Cell drinking & growth in harsh microenvironments
22 Oct	Yitang Zhou	Intracellular Nanothermometry
28 Oct	Dr Alexander Stilgoe	Our Precious Bodily Fluids
29 Oct	Dr Jieqiong Lou	BRCA1 vs. 53BP1: Balancing Chromatin Structure and Mobility in DNA Repair
29 Oct	Professor Ethan Scott	Custom light-sheet microscopy for whole-brain cellular resolution functional imaging in zebrafish
5 Nov	Dr Sophie Lin	Quantum Sensors for the “Little Brain”: Enabling Cerebellar MEG with OPM Technology

TRAINING COURSES 2025

Date	Training Course
21 Jan	Professional skills: Responsible Science Workshop
4 Aug	Research Skills: Transdisciplinary Innovation, Helena Robinson and Jan Henrik Gruenhagen, UTS Transdisciplinary School
5 Aug	Media / Communications / Writing / Public Speaking: Pitch Your Science, Niall Byrne, Creative Director, Science in Public
5 Aug	Media / Communications / Writing / Public Speaking: Write with Impact: Insights from a Nature Editor, Susan Allison, Consulting Editor, Nature
5 Aug	Professional skills: Getting your Research into Policy and Practice, Caitlin Curtis, UQ Business School
5 Aug	Grant Applications / Job Applications / Interview Training: Panel on Individual Fellowships, A/Professor David Simpson, A/Professor Elizabeth Hinde, Dr Pavlina Naydenova, Dr Sergey Kruk
6 Aug	Professional skills: Connecting with industry: Commercialisation, networks, and the quantum landscape, Fernando Alves, Quantum Australia
6 Aug	Research Skills: Exploring ultra-large chemical spaces with AI and Quantum-mechanical approaches, Dr Mark Waller, CEO of Pending AI

Centre Movements

POSTGRADUATE COMPLETIONS

PhD

Siyuan Meng
Tao Sun
Mark Watson
Michael Jones
Floyd Creevey
Di Wang
Yitong Zhao
Ziwei Wu
Yangjian Cai

Masters research

Blake Bishop

Honours research

Max Foreman

ADDITIONAL RESEARCHERS ON CENTRE RESEARCH

Postdocs

Dr Mina Barzegaramiriolya
Dr Soroush Khademi
Dr Sophie Lin
Dr Le Nhan Pham
Dr Muhammad Nadeem
Dr Franco Centurion Rodriguez
Dr Elise Rowe
Dr Sam Scholten
Dr Eleanor Trimby
Dr Mark Watson
Dr Michael Jones
Dr Qiang Zhu
Dr Parinaz Ahangar
Dr Qian Guo
Dr Tom Walker
Dr Amal El Hage
Dr Floyd Creevey
Ajaykumar Mavilakizhakke Puthiyaveettil
Yee Yee Khine

PhD

Aditya Aditya
Sidra Batool
James Deng
Charlie Gray
Joaquín Hinojosa
Nhat Tan Huynh
Luke Kelly
Fariha Khaliq
Zuzana Leova
Dan Lei
Siyuan Meng
Hongyu Shen
Sylvia Tan
Maoxin Zhang
Vrushali Maste
Dhilan Vallury
Angela Hermann
Farrel Separgo
Shijie Zhang

Masters research

Rebecca Haustein
Harry Mogg
Cameron Petty
Yung Zhen Tan
Do Tan Vinh
Keith Wong
Pokpong Thananchai

Honours

Zayne Jensen
Saul Menendez

Undergraduates

Kayzer Ali
Finn Macnamara
Lara Christ
Lianne Lay

UG Summer Interns 2025

Anthea Sun
Laz Ashcroft
Nicholas Fantham
Alex Wright

Research Assistants

Dylan Litchfield
Mahnaz Maddahfar

Admins

Angela Bird
Kaerin Gardner
Kathryn Pearson

Collaborations 2025

Name	Collaboration
Professor Alan Mark	Visit Partner Organisation, University of Stuttgart
Professor Alan Mark	Visit non-partner organisation/lab, Boku University
Distinguished Professor Dayong Jin, Professor Alan Mark	Visit to another Centre node, University of Queensland, University of Technology Sydney
Professor Alan Mark	Internship; QUBIC PI, CSIRO Data61
Professor Alan Mark, Dr Martin Stroet	Visit non-partner organisation/lab, University of Queensland
Professor Alan Mark, Dr Martin Stroet, Callum Macfarlane	CAI, University of Queensland
Professor Alan Mark, Dr Martin Stroet, Callum Macfarlane	PsiQuantum
Alex Wright, Professor Jiajia Zhou	QUBIC Undergraduate Internship Program, University of Technology Sydney
A/Professor Allison Fish	Visit non-partner organisation/lab, University of Arizona
A/Professor Allison Fish	Visit non-partner organisation/lab, Northern Arizona University
Anthea Sun, Professor Jennifer Stow	QUBIC Undergraduate Internship Program, University of Queensland
Dr Benjamin Carey	Visit to another Centre node, University of Melbourne, University of Queensland
A/Prof David Simpson	Collaboration with RMIT to work on magnetoproteins, University of Melbourne, RMIT
A/Prof David Simpson	Partnership in Victorian diamond manufacturing facility, University of Melbourne
Distinguished Professor Dayong Jin	Visit to another Centre node, University of Wollongong, University of Technology Sydney
Dr Dzung Do-Ha	Visit to another Centre node, University of Wollongong, University of Melbourne
Dr Dzung Do-Ha, Professor Lezanne Ooi	Visit to another Centre node, University of Wollongong, University of Melbourne
Dr Dzung Do-Ha, Dr Meryem-Nur Duman	Visit to another Centre node, University of Technology Sydney, University of Wollongong
A/Professor Elizabeth Hinde	QUBIC Outreach and Engagement Funding, University of Melbourne
A/Professor Elizabeth Hinde	QUBIC Outreach and Engagement Funding, University of Melbourne
Emma De Costa	Visit to another Centre node, University of Queensland, University of Wollongong
Emma De Costa, Dr Dzung Do-Ha	Visit to another Centre node, University of Technology Sydney, University of Wollongong
Errol Hunt	Quantum Future Workforce workshop, Monash University
Dr Galya Haim	Visit to another Centre node, University of Melbourne

Name	Collaboration
Dr Guy Barry	Visit to another Centre node, Flinders University, University of Queensland
Dr Guy Barry	Visit to another Centre node, University of Wollongong, University of Queensland
Dr Guy Barry	Visit to another Centre node, University of Technology Sydney, University of Queensland
Professor Haibo Yu	Visit to another Centre node, University of Technology Sydney, University of Wollongong
Professor Haibo Yu	Visit to another Centre node, University of Technology Sydney, University of Wollongong
Professor Halina Rubinsztein-Dunlop	Visit non-partner organisation/lab, Technical University of Denmark
Professor Halina Rubinsztein-Dunlop	Visit non-partner organisation/lab, Max Planck Institute for the Science of Light
Professor Halina Rubinsztein-Dunlop	Visit non-partner organisation/lab, Cobalt Lasers
Professor Halina Rubinsztein-Dunlop	Visit non-partner organisation/lab research collaboration, University of Gothenburg
Professor Halina Rubinsztein-Dunlop	Visit non-partner organisation/lab research collaboration, Chalmers University of Technology
Professor Halina Rubinsztein-Dunlop	External Visitor: Qld Government Inside Advanced Manufacturing Lab Tour, University of Queensland, Qld Government
Professor Irina Kabakova	Visit non-partner organisation/lab, University of Houston, Texas
Professor Jeffrey Reimers	Visit to another Centre node, University of Queensland, University of Technology Sydney
Professor Jeffrey Reimers	Visit to another Centre node, University of Melbourne, University of Technology Sydney
Professor Jeffrey Reimers	Visit non-partner organisation/lab, RMIT, University of Technology Sydney
Professor Jennifer Stow	Visit to another Centre node, Flinders University, University of Queensland
Professor Jiajia Zhou	External Visitor: PI Gabrielle Upton, University of Technology Sydney
Professor Jiajia Zhou	Visit non-partner organisation/lab, University of Melbourne
Professor Jiajia Zhou, Guy Barry	Visit to another Centre node, University of Technology Sydney, University of Queensland
Laz Ashcroft, Professor Lezanne Ooi, Dr Dzung Do-Ha	QUBIC Undergraduate Internship Program, University of Wollongong
Dr Leo Zhang	Visit non-partner organisation/lab, Seoul National University
Professor Lezanne Ooi	External Visitor: Quantum Australia, University of Wollongong
Lianne Lay, A/Prof David Simpson	QUBIC Undergraduate Internship Program, University of Melbourne

Name	Collaboration
Professor Lloyd Hollenberg	Wellcome Leap program, Sanger Institute
Dr Martin Sadraeian	Visit to another Centre node, University of Technology Sydney, University of Queensland
Professor Michelle Coote, Professor Megan O'Mara	Visit to another Centre node, Flinders University, University of Queensland
Nicholas Fantham, Professor Haibo Yu	QUBIC Undergraduate Internship Program, University of Wollongong
Dr Nicholas Westra van Holthe	Visit to another Centre node, University of Technology Sydney, University of Queensland
Dr Nisha Mehta, Professor Alan Mark, Professor Jeffrey Reimers, Dr Martin Stroet, Callum Macfarlane	Visit to another Centre node, University of Queensland, University of Technology Sydney
Dr Pavlina Naydenova	Visit to another Centre node, University of Wollongong, University of Queensland
Dr Pratap Devarapalli	Visit non-partner organisation/lab, Academy of Scientific and Innovative Research (AcSIR) Foundation Day at Council of Scientific and Industrial Research (CSIR) - Unit for Research and Development of Information Products (URDIP), University of Queensland
Dr Pratap Devarapalli	Visit non-partner organisation/lab, Max Planck Institute of Innovation and Competition
Dr Sergey Kruk	Visit to another Centre node, University of Queensland, University of Technology Sydney
Professor Warwick Bowen	Visit to another Centre node, Flinders University, University of Queensland
Professor Warwick Bowen	External Visitor: Terry Rudolph, PsiQuantum founder, University of Queensland, PsiQuantum
Professor Warwick Bowen	External Visitor: Michael Brett, University of Queensland, Amazon Web Services
Professor Warwick Bowen, Distinguished Professor Dayong Jin	External Visitor: NSW Chief Scientist, Professor Hugh Durrant-Whyte, University of Technology Sydney
Professor Warwick Bowen, Professor Irina Kabakova	External Visitor: Professor Hugh Durrant-Whyte, and Ms Kristen Mulligan, University of Technology Sydney. NSW Government
Professor Warwick Bowen, Professor Lezanne Ooi	Visit to another Centre node, University of Wollongong, University of Queensland
Zahra Raza	Visit to another Centre node, University of Wollongong, University of Queensland

Funding 2025

SUCCESSFUL GRANTS

Granting Body	Name	Project Title	Grant ID	Total funding (AUD)
Australian Government Department of Industry, Science & Resources	**A/Prof David Simpson**	CTCP Program Stage 1 - "Quantum sensing to improve iron diagnosis in First Nations People	CTCFII000004	$494,000.00
Commonwealth Department of Education	**A/Prof David Simpson**	Quantum voltage imaging assays for neuro-pharmacology"	IG240100176	$496,638.00
Aust National Fabrication Facility (ANFF)	**A/Prof David Simpson**	VIC Technology Fellow Ambassador		$60,000.00
MND Australia	**Dr Dzung Do-Ha**	From spatial pattern to treatment: a region-aware human spinal model for MND		$100,000.00
National Health and Medical Research Council	**A/Professor Elizabeth Hinde**	To investigate mRNA export via use of spatial triple correlation spectroscopy		$1,298,810.00
Australian Research Council	**Professor Haibo Yu**	Unravelling Molecular Mechanisms of SSA DNA Homologous Recombination	DP260102940	$1,195,877.00
National Computational Infrastructure	**Professor Haibo Yu**	Computer simulations of molecular systems and computer-aided molecular design		$740,000.00
Australian Research Council	**Professor Jennifer Stow**	The Queensland Advanced Non-Linear Tissue-biomaterials Imaging Capacity (QUANTIC) is a cutting-edge imaging platform that will transform our understanding of living tissues	LE260100152	$922,692.00
National Health and Medical Research Council	**Professor Jiajia Zhou**	Acquisition of SPAD array camera		$50,000.00
Michael J Fox Foundation	**Professor Lezanne Ooi**	Phenotyping environmental exposure to long-lasting chemicals, nanoplastics and pesticides in iPSC dopaminergic neurons and glia	MJFF-025644	$384,075.00
Michael J Fox Foundation	**Professor Lezanne Ooi**	Assessment of electrophysiological and mitochondrial phenotypes in neurons, astrocytes and microglia from SNCA triplication lines	MJFF-025639	$410,755.00

Granting Body	Name	Project Title	Grant ID	Total funding (AUD)
MND Australia	**Professor Lezanne Ooi**	Screening small molecules to promote innervation in a motor neuron disease neuromuscular junction patient stem cell model 2025		$1,000,000.00
Australian Research Council	**Professor Lezanne Ooi**	Mass Spectrometer for Label-Free Molecular Imaging at Ultra-High Resolution	LE250100150	$1,281,990.00
National Health and Medical Research Council	**Professor Lezanne Ooi**	Mechanisms In NeuroDegeneration – Alzheimer's Disease	2035494	$5,000,000.00
Data Effects Pty Ltd	**Professor Marta Garrido, Dr Suresh Sundram, Dr Nao Tsuchiya, Dr Stephen Wood**	A computational psychiatry approach to understanding the brain mechanisms underpinning altered perception in psychosis	RCH0244115	$1,400,000.00
Australian Research Council	**Professor Michelle Coote**	Mass Analysis Facility for Precision Molecular Science. This project aims to address a critical analytical gap in South Australia by establishing a high-resolution mass spectrometry facility for molecular imaging and high-throughput chemical analysis of complex mixtures	LE260100060	$1,799,000.00
Data Effects Pty Ltd	**Dr Pavlina Naydenova, Professor Warwick Bowen, Professor A Geering, Dr N Tran, Dr A Baker, Mr P Coldrey**	Quantum-enabled detection of invasive pathogens for improved biosecurity	CTCFII00065	$347,773.80
Orica Australia Pty Ltd	**Professor Warwick Bowen, Dr Nathaniel Bawden, Dr Benjamin Carey, F Gortado**	Magnetic through-earth communications for mining (Critical Technologies Challenge Program grant administered by Orica Australia Pty Ltd)		$188,865.60
University of Queensland, Griffith University, and Sanofi	**Professor Warwick Bowen, Dr Lars Madsen, Professor Jennifer Stow, Professor Alan Rowan, Dr Nicolas Mauranyapin, Dr Amanda Kijas**	Understanding and optimising receptor binding for transmembrane drug delivery	118041	$209,902.00

Translation Activities 2025

In 2025 QUBIC accelerated the translation of quantum biotechnology through the following activities:

QUBIC events

- Q^x | Queensland's Advanced Technologies Future, Brisbane – David Simpson, Eleanor Trimby, Chris Vale (CSIRO), Warwick Bowen
- qLIFE | International Conference on Quantum Technologies and the Life Sciences, Wollongong
- Quantum Meets Biotech, satellite to AusBiotech 2025, Melbourne – Lezanne Ooi Chair

Conferences & Showcases

- SPIE Photonics West, San Francisco (USA) – Halina Rubinsztein-Dunlop, Irina Kabakova
- Central Coast Local Health District Research and Innovation Symposium – Irina Kabakova
- Quantum Australia 2025, Brisbane – QUBIC team
- Queensland Health Research Excellence Showcase 2025 – Warwick Bowen
- Quantum World Congress, Washington DC, USA – Michael Harvey
- Quantum Meets Decarbonisation Workshop – Keynote Warwick Bowen
- UK National Quantum Technologies Showcase, London, UK – Michael Harvey
- Australian and New Zealand Conference on Optics and Photonics (ANZCOP), Auckland NZ – Errol Hunt

Training & Professional Development

- Training for QUBIC EMCRs at the University of Wollongong, University of Technology Sydney, University of Melbourne, and at the EMCR/Themes Workshop – delivered by Guy Barry.
- Research translation sessions at QUBIC Annual Symposium, Wollongong – Errol Hunt and Michael Harvey
- QUBIC industry seminar – Terry Rudolph, PsiQuantum founder
- EMCR/Themes Workshop – Michael Biercuk Q-CTRL CEO
- EMCR/Themes Workshop, Pitch your science – Niall Byrne, Science in Public
- EMCR/Themes Workshop, Getting your Research into Policy and Practice – Caitlin Curtis, UQ Business School
- EMCR/Themes Workshop – Fernando Alves (Quantum Australia) and Dr Mark Waller (Pending AI)
- QUBIC industry seminar – Juan (Jane) Li, ANFF
- QUBIC industry seminar – Rodney Appleby, Orica,

Industry Tours

- University of Queensland labs, Inside Advanced Manufacturing Tours, via Trade and Investment Queensland
- Queensland Health Lab Tour – Warwick Bowen, Halina Rubinsztein-Dunlop, Jennifer Stow
- UQ Lab tours for DARPA and USA Embassy

Outreach & Engagement Activities 2025

Name	Presentations & Briefing	
Professor Alan Mark	Industry/government/ business/end users	Presentation, Asia Pacific Quantum Working Group for Healthcare and Life Sciences (HCLS APAC),
Dr Alexander Stilgoe	School	Young Changemakers Program lab activities and research showcase, University of Queensland, 12/01/2025
Professor Alexander Solntsev	Industry/government/ business/end users	Meeting, CSIRO: Exploring opportunities for future funding, 11/06/2025
Professor Alexander Solntsev	Industry/government/ business/end users	Meeting, CSIRO: Exploring opportunities for future funding, 11/03/2025
Professor Alexander Solntsev	Industry/government/ business/end users	Meeting, Quantum Australia: Exploring opportunities for future funding, 17/03/2025
Professor Alexander Solntsev	Industry/government/ business/end users	Meeting, Quantum Australia: Exploring opportunities for future funding, 03/06/2025
Dr Alexander Stilgoe	Public	World Science Festival Brisbane, Qld Museum, 22/03/2025
Dr Benjamin Carey	Industry/government/ business/end users	Could Quantum Science offer a Concussion Diagnostic Tool in Sport – Part of the innovation sprint to 2032, or more time required?, Sports Technology and Applied Research Symposium (STARS 2025), 22/10/2025
Callum Mcfarlane	Industry/government/ business/end users	NGQGP Presentation, CSIRO, 04/06/2025
A/Professor David Simpson	Public	Quantum Sensing: The diamond age of quantum biotechnology, 11/07/2025
A/Professor David Simpson	School	Dark Matter Road Trip Melton
A/Professor David Simpson	School	How can quantum physics tackle some of medicine's biggest challenges?, MacRobertson Girls High School, 09/12/2025
Dr Dzung Do-Ha	School	Your Quantum Future Conference, ACT Future Skills, 07/02/2025
Dr Dzung Do-Ha, Professor Lezanne Ooi	Industry/government/ business/end users	Lab Tour, Mind Bioscience
Dr Dzung Do-Ha, Professor Lezanne Ooi	Public	Organisation of Public Lecture: Quantum Technologies for Life & Health: Public Lecture, QUBIC
Dr Dzung Do-Ha, Professor Lezanne Ooi, Dr Luke McAlary	Industry/government/ business/end users	Meeting with Quantum Australia, UoW Advancement Team, 27/08/2025
A/Professor Elizabeth Hinde	School	Dark Matter Road Trip Melton, Melton Secondary College, 13/08/2025
Errol Hunt	Industry/government/ business/end users	Australian and New Zealand Conference on Optics and Photonics (ANZCOP) conference, 08/12/2025
Professor Haibo Yu	Industry/government/ business/end users	Meeting, Race Oncology

Name	Presentations & Briefing	
Professor Haibo Yu	Industry/government/ business/end users	Meeting with CIQTEK, 24/11/2025
Professor Haibo Yu	Industry/government/ business/end users	Meeting with Quantum Australia, 27/08/2025
Professor Halina Rubinsztein-Dunlop	Industry/government/ business/end users	QLD Draft National Health and Medical Research Strategy Roundtable, Qld Government, 10/09/2025
Professor Halina Rubinsztein-Dunlop	Industry/government/ business/end users	Meeting, Novotech, 30/04/2025
Professor Halina Rubinsztein-Dunlop	Industry/government/ business/end users	Meeting, Pending AI, 30/04/2025
Professor Halina Rubinsztein-Dunlop	Industry/government/ business/end users	Meeting, Sullivan Nicolaides Pathology, 30/04/2025
Professor Halina Rubinsztein-Dunlop	Industry/government/ business/end users	Meeting, IBM Corporation, 30/04/2025
Professor Halina Rubinsztein-Dunlop	Industry/government/ business/end users	Meeting, Thermo Fisher, 30/04/2025
Hunter Johnson	Public	Quantum Diamond Sensing - Radio, Einstein A Go-Go, RRR Radio, Melbourne, 06/07/2025
Hunter Johnson	School	Dark Matter Road Trip Melton, Melton Secondary College
Professor Irina Kabakova	School	Amolf Institute Seminar, 21/07/2025
Professor Jeffrey Reimers	Industry/government/ business/end users	Meeting, Advanced Molecular Technologies, 05/09/2025
Professor Jiajia Zhou	School	Mentoring Female Scientists, University of Technology Sydney, 22/05/2025
Professor Lezanne Ooi	Industry/government/ business/end users	Bridging quantum technology and medtech, AusMedtech, 12/02/2025
Professor Lezanne Ooi	Industry/government/ business/end users	Exploring opportunities, Mind bioscience, 28/08/2025
Professor Lezanne Ooi	Industry/government/ business/end users	Scoping meeting, Mind bioscience
Professor Lezanne Ooi	Industry/government/ business/end users	Promis neuroscience,
Professor Lezanne Ooi	Industry/government/ business/end users	Exploring opportunities, AusBiotech, 20/10/2025
Professor Lezanne Ooi	Public	Media Interview, FightMND, 27/10/2025
Professor Lezanne Ooi	Public	Quantum Lands in Wollongong, Illawarra Media, 11/06/2025
Professor Lezanne Ooi	Public	Quantum Biotechnology in the Illawarra, ABC Illawarra Radio, 25/11/2026

Name	Presentations & Briefing	
Professor Lloyd Hollenberg	Industry/government/ business/end users	Quantum science – Australia's opportunities and challenges in the International Year of Quantum Science and Technology: 2025 Judicial Conference, Supreme Court of Victoria, October
Professor Lloyd Hollenberg	Industry/government/ business/end users	Quantum Australia Showcase, University of Melbourne, August
Professor Lloyd Hollenberg	Industry/government/ business/end users	PFAS meets Quantum Presentation, University of Melbourne, November
Dr Marita Rodriguez	School	Glennie School, Toowoomba
Dr Mark Watson	Industry/government/ business/end users	Inside Advanced Manufacturing Tour research showcase, Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development, 11/09/2025
Dr Pavlina Naydenova	Industry/government/ business/end users	Quantum: What's Wow and What's Now?!, Something Fest, 26/08/2025
Dr Pavlina Naydenova	Public	Quantum: What's Wow and What's Now?!, Something Fest, 26/08/2025
Dr Pavlina Naydenova	School	Glennie School, Toowoomba
Dr Pavlina Naydenova	School	Your Quantum Future Conference, ACT Future Skills, 02/07/2025
Dr Pavlina Naydenova	School	Young Change Makers Program, University of Queensland, 01/12/2025
Dr Pedram Rashidi	Public	Quantum Innovation & Society Podcast, University of Queensland
Dr Pedram Rashidi & Dr Omkar Nadh Pattela	School	NYSF Year 12 Program, National Youth Science Forum, 17/01/2025
Professor Sir Peter Knight & Professor Jennifer Dionne	Public	Quantum Technologies for Life & Health, University of Wollongong, 18/11/2025
Dr Pratap Devarapalli	School	Science Write Now, Young Writers Fellowships, 01/07/2025
Dr Sergey Kruk	School	Careers Stall, Quantum Future Talent Open Day and Careers Fair, 15/07/2025
Professor Warwick Bowen	Industry/government/ business/end users	Queensland Quantum Bioinnovator Initiative
Professor Warwick Bowen	Industry/government/ business/end users	"Precision sensors to provide asymmetric sovereign capacity in GPS-denied navigation, Queensland Defence Science Alliance, 23/10/2025"

Name	Presentations & Briefing	
Professor Warwick Bowen	Industry/government/ business/end users	Queensland Health Research Showcase: Quantum Opportunities in Health, Boulevard Room, Brisbane Convention and Exhibition Centre (BCEC), South Brisbane, 30/05/2025
Professor Warwick Bowen	Public	World Quantum Day, University of Queensland, 14/04/2025
Professor Warwick Bowen	Public	Bringing quantum to life, University of Queensland BrisScience, 07/04/2025
Professor Warwick Bowen	Public	Heads Up: Concussion, Safety, and Sports, Queensland Brain Institute, 18/08/2025
Professor Warwick Bowen	School	STEM Girl Power, 21/05/2025
Professor Warwick Bowen	School	SMP Colloquium: Bringing quantum to life, University of Queensland School of Maths and Physics, 11/04/2025

QUBIC News, Media & Broadcast 2025

QUBIC's media and communications presence grew substantially in 2025, with strong national and international coverage, broadcast interviews, a new podcast series, and an expanding social media footprint that collectively strengthened public awareness of quantum biotechnology.

NEWS, ONLINE & PRINT MEDIA

Date (2025)	Outlet / Region	Headline / Story	Focus	QUBIC People Mentioned	Est. Reach
6 Nov	*Illawarra Mercury* (Illawarra, AU)	**Quantum lands in Wollongong, no leap required**	qLIFE conference hosted by QUBIC	Lezanne Ooi	34k
21 Sep	*Cosmos Magazine* (AU)	**Quantum biotech sparks race for medical solutions**	Feature on QUBIC research and capabilities	Irina Kabakova, Warwick Bowen, Lloyd Hollenberg, Alan Mark, Lezanne Ooi	316k
24 Jun	*Magnetics Magazine* (US)	**Elemental in Queensland develops tunable magnetic field instruments**	Quantum sensing instruments	Warwick Bowen	4.72k
7 Apr	*Dispatch from Down Under – Substack* (US)	**Quantum Diplomacy in Action**	Australia's quantum leadership	Warwick Bowen, Lloyd Hollenberg	50.3M
20 Mar	*Start Us Insights* (AT)	**Top 10 Trends in Biotechnology & Innovations 2025**	Global innovation feature citing QUBIC	QUBIC	62.3k
16 Jan	*Education HQ* (AU)	**NYSF STEM Stars**	National Youth Science Forum partners	QUBIC	14.7k
6 Jan	*BNS Global News* (US)	**Science & tech opportunity of a lifetime at NYSF Year 12 Program**	NYSF partner organisations	QUBIC	343

BROADCAST MEDIA (RADIO)

Date (2025)	Outlet	Segment / Title	Focus / Topic	QUBIC People
7 Nov	ABC Illawarra Mornings	**qLIFE interview**	Quantum tech in life sciences	Prof Lezanne Ooi
18 Nov	ABC Illawarra Mornings	**qLIFE interview**	Quantum applications in health & environment	Prof Sir Peter Knight
21 Nov	ABC Illawarra Mornings	**qLIFE interview**	Quantum technologies in ocean health	Prof Jennifer Dionne

Date (2025)	Outlet	Segment / Title	Focus / Topic	QUBIC People
6 Jul	RRR Radio (Melbourne)	**Interview with Hunter Johnson**	Quantum sensing using lab-grown diamonds	Hunter Johnson
3 Feb	ABC Evenings	**International Year of Quantum**	Advances in quantum technologies	Prof Warwick Bowen

QUBIC PODCAST

Date (2025)	Outlet	Podcast Series	Episode Title / Guest	QUBIC Person
2025	Spotify	**Quantum Innovation & Society**	*Episode 1 — Part 1:* Sir Peter Knight on quantum optics & national programs	Dr Pedram Rashidi
2025	Spotify	**Quantum Innovation & Society**	*Episode 1 — Part 2:* Challenges & opportunities in quantum innovation	Dr Pedram Rashidi
2025	Spotify	**Quantum Innovation & Society**	*Episode 2:* Gerard Milburn on Australia's quantum future	Dr Pedram Rashidi

EVENT LINKED MEDIA

Event	Media Type	Summary
qLIFE Conference (Wollongong)	Print + Radio	Significant regional & national coverage featuring QUBIC and international speakers from Imperial College London and Stanford
International Year of Quantum	National radio	ABC Evenings interview with Prof Warwick Bowen
Quantum Meets Biotech / Quantum Meets Decarb	Media pickups	Increased media attention on quantum-enabled healthcare and sustainability

SOCIAL MEDIA – LINKEDIN

KPI	2025 Outcome	Notes
Total posts	76 posts	Research highlights, capability launches, DEI initiatives, EMCR achievements, event coverage, translation activities
Audience & engagement	Grew national and international audience by 340% in 2025	Strong interaction from academia, industry, government & STEM communities
Strategic purpose	National visibility of quantum biotechnology	Posts supported industry engagement, government awareness and public understanding of quantum science
Role in Centre impact	Showcased QUBIC's achievements and capabilities	Demonstrated Australia's growing strength in quantum-enabled biotechnology

Thank you to our key partners & collaborators

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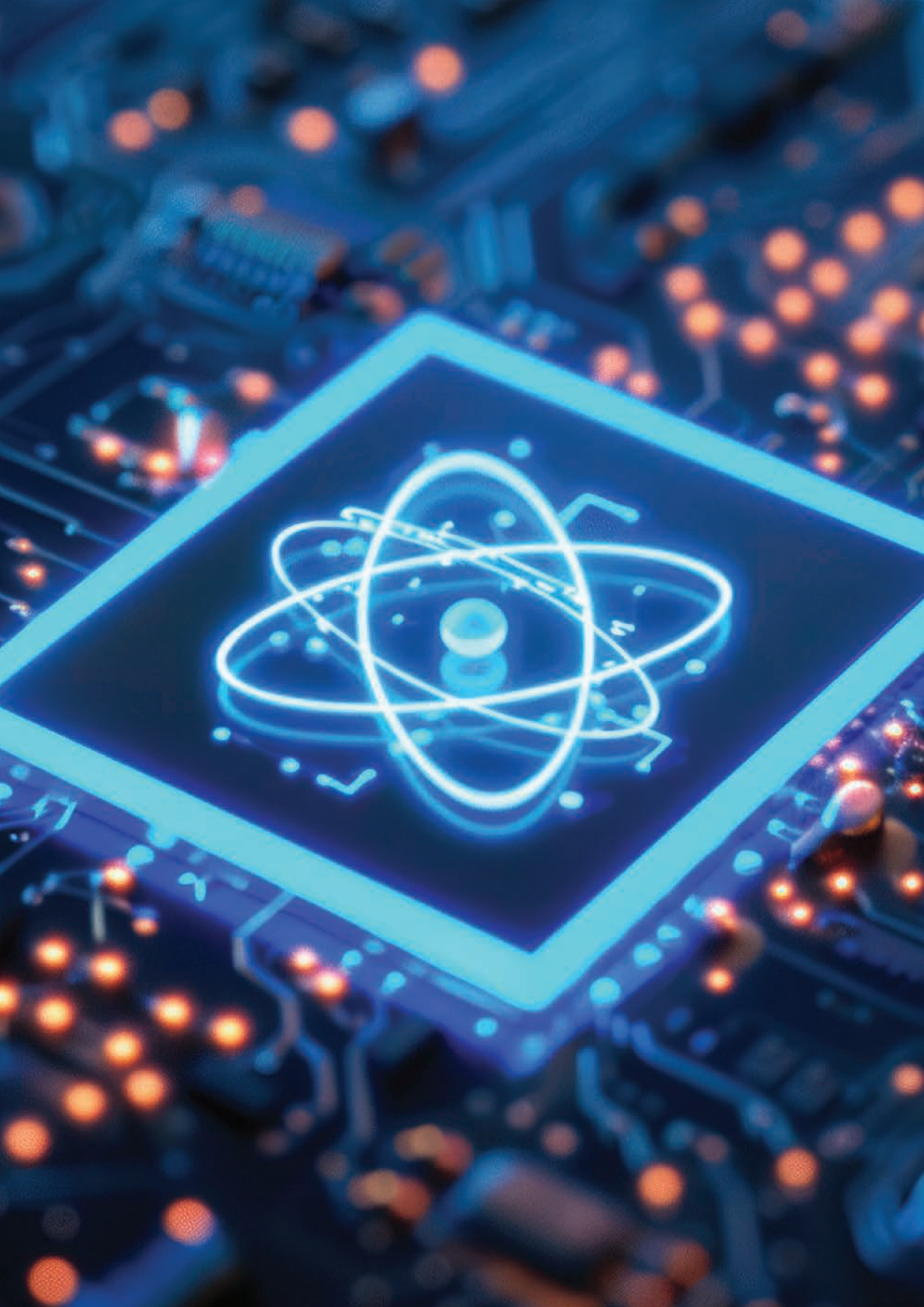

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