



QLIFE

International Conference on
Quantum Technologies in the Life Sciences

19-21 NOVEMBER 2025
WOOLYUNGAH/WOLLONGONG
AUSTRALIA



CONFERENCE PROGRAM

QUANTUM.BIO | BRINGING QUANTUM TO LIFE | #QLIFE2025

Tuesday, 18 November 2025

| Time | Activity | Speakers |
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| 18:00 - 20:30 Wollongong, venue TBA | Welcome Reception and Public Lectures | Prof Jennifer Dionne Prof Sir Peter Knight |

Wednesday 19 November 2025, Novotel Hotel

| Time | Activity | Speakers |
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| 8:30 - 8:45 | Welcome to Country | |
| 8:45 - 9:00 | Welcome | Prof Warwick Bowen |
| 9:00 - 9:40 | Future Perspective Keynote <i>The impact of quantum computing on life sciences – and current challenges that must be overcome</i> | Prof Lene Oddershede , Novo Nordisk Foundation |
| 9:40 - 10:10 | Morning Tea | |

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| 10:10 - 10:40 | Invited presentations: quantum biomedical imaging I | Discussion Leader: Prof Miles Padgett , University of Glasgow |
| 10:40-11:10 | <i>Parahydrogen-based Hyperpolarization for Biomedical Imaging</i> | Dr Stephan Knecht , NVision Imaging Technologies |
| 12:20-13:20 | LUNCH | |
| | Invited presentations: quantum biomedical imaging II | Discussion Leader: Prof Lezanne Ooi , University of Wollongong |
| 13:20-13:50 | Invited speaker presentation | Prof Fazhan Shi , Hefei National Laboratory |
| 13:50-14:20 | <i>NV-diamond sensing of mitochondrial redox dynamics: From neurodegeneration models to hypomagnetic therapeutic avenues</i> | Prof Melissa Mather , Nottingham University |
| 14:20-14:50 | <i>Diamond quantum sensors for precision diagnostics and drug discovery</i> | A/Prof David Simpson , The University of Melbourne |
| 14:50-15:20 | Afternoon tea | |
| 15:20-15:50 | Invited presentations: quantum sensing and imaging in biology I | Discussion Leader: Prof Martin Plenio , University of Ulm |
| 15:50-16:20 | <i>Magnetic field control of protein function</i> | Dr Maria del Mar Ingaramo , Calico Labs |
| 16:20-16:50 | <i>From diamond defects to protein-based qubit sensors</i> | Prof Peter Maurer , University of Chicago |
| 16:50-17:20 | <i>Molecular Quantum Nanosensors Functioning in Living Cells and Beyond</i> | Prof Hitoshi Ishiwata , National Institutes for Quantum Science and Technology, Japan |
| 18:00 - 21:00 | Poster session (roving canapes & drinks) | |

Thursday, 20 November 2025, Novotel Hotel

| Time | Activity | Speakers |
|--------------------|---|---|
| 9:00 - 9:40 | Future Perspective Keynote <i>Quantum Computing for Health Care and Life Science Applications</i> | Dr Gavin Jones , IBM |
| 9:40 - 10:20 | Future Perspective Keynote <i>Quantum sensing for health – moving things forward</i> | Prof Ronald Walsworth , University of Maryland |
| 10:20-10:50 | Morning Tea | |
| | Invited presentations: quantum sensing and imaging in biology II | Discussion Leader: Prof Irina Kabakova , University of Technology Sydney |
| 10:50 - 11:20 | <i>Super-Resolution Quantum Imaging using Entanglement</i> | Prof Lihong Wang , California Institute of Technology |
| 11:20 - 11:50 | <i>A quantum advantage in conventional fluorescence microscopy using photon statistics</i> | Prof Dan Oron , Weizmann Institute |
| 11:50 - 12:20 | <i>Invited speaker presentation</i> | Prof Daniele Faccio , University of Glasgow |
| 12:20 - 13:50 | LUNCH | |
| | Invited presentations: quantum sensing and imaging in biology III | Discussion Leader: Prof Halina Rubinsztein-Dunlop , The University of Queensland |
| 13:50 - 14:20 | <i>Quantum biosensing enabled by diamond spin qubits</i> | Prof Fedor Jelezko , University of Ulm |
| 14:20 - 14:50 | <i>Nanodiamonds with NV-centers – a multi-modal intracellular probe</i> | Prof Kirstine Berg-Sørensen , Technical University of Denmark |
| 14:50 - 15:20 | <i>Invited speaker presentation</i> | Prof Ivan Favero , CNRS, Université Paris Cité |
| 15:20 - 15:50 | <i>Invited speaker presentation</i> | Dr Jesse Slim , The University of Queensland |
| 15:50 - 16:20 | Afternoon tea | |

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| 16:20 - 16:30 | Invited presentations: quantum biomedical diagnostics I | Discussion Leader: Dr Liam Hall , Commonwealth Scientific and Industrial Research Organisation (CSIRO) |
| 16:30 - 17:00 | <i>Diamond based quantum sensing in diagnostics</i> | Prof Romana Schirhagl , QT Sense & Gröningen University |
| 17:00 - 17:30 | <i>Advancing NV-based quantum sensing techniques for investigating membrane mechanics and dynamics</i> | Prof Quan Li , Chinese University of HongKong |
| 17:30 - 17:40 | Short Break | |
| 19:00 - 21:30 | Gala Dinner | |

Friday, 21 November 2025, Novotel Hotel

| Time | Activity | Speakers |
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| 9:00 - 9:40 | Future Perspective Keynote <i>Functional brain imaging with quantum magnetometers</i> | Prof Svenja Knappe , FieldLine & University of Colorado |
| 9:40 - 10:20 | <i>Invited speaker presentation</i> | Prof Miles Padgett , University of Glasgow |
| 10:20 - 10:50 | Morning Tea | |
| 10:50 - 11:00 | Invited presentations: quantum computing for the life sciences I | |
| 11:00 - 11:30 | <i>A Molecular-Property-Driven Roadmap for Quantum Use Cases in Drug Binding</i> | Prof Yudong Cao , Purdue University |
| 11:30 - 12:00 | <i>From Algorithm to Human Clinical Trials: Accelerating Drug Discovery and Development With Generative AI and Laboratory Automation</i> | Dr Alex Aliper , Insilico Medicine |
| 12:00 - 12:30 | <i>Invited speaker presentation</i> | Prof Sabrina Maniscalco , Algorithmiq & University of Helsinki |
| 12:30 - 14:00 | LUNCH | |
| | Invited presentations: quantum computing for the life sciences II | Discussion Leader: Prof Alan Mark , The University of Queensland |

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| 14:00 - 14:30 | <i>Invited speaker presentation</i> | Dr Tom O'Brien , Google |
| 14:30 - 15:00 | <i>Compiling quantum chemistry algorithms on fault-tolerant quantum computers</i> | Dr Will Pol , PsiQuantum |
| 15:00 - 15:30 | <i>Engineering quantum effects in light harvesting: Lessons from quantum biology</i> | Prof Ivan Kassal , University of Sydney |
| 15:30 - 16:00 | Afternoon tea | |
| | Invited presentations: quantum biomedical diagnostics II | Discussion Leader: Prof Makoto Negoro , Center for Quantum Information and Quantum Biology, University of Osaka |
| 16:00 - 16:30 | <i>Nanophotonics and AI for scalable molecular sensing, sequencing, and synthesis</i> | Prof Jennifer Dionne , Stanford University, Q-NEXT & Pumpkinseed |
| 16:30 - 17:00 | <i>Invited speaker presentation</i> | Dr Ben Miller , University College London |
| 17:00 - 17:20 | Closing Remarks & Awards Ceremony | |