QUBIC
The Australian Research Council Centre of Excellence in Quantum Biotechnology

WINTER SCHOOL 2025

Sydney & Katoomba, NSW

4-5 AUGUST 2025

QUBIC Winter School is a professional development program designed to enhance the transferable skills of early- and mid-career researchers.

This year's Winter School will prioritise building science communication skills and working in interdisciplinary teams.

Day 1
Monday 4th August UTS, Sydney, NSW
Building 11 (Faculty of Engineering & IT), Level 6, Seminar Room 408 (CB11.06.408)

10.30 am – 11.30 am	Arrival & registration
11.30 am – 12.30 am	**Lab tours at UTS** **Organizer: Meryem Duman**
12.30 pm – 13.30 pm	Lunch
1.30 pm – 3.00 pm	Session 1: **Transdisciplinary Innovation** by Helena Robinson and Jan Henrik Gruenhagen, UTS Transdisciplinary School **Chaired by Pavlina Naydenova**
3.00 pm – 3.15 pm	Afternoon tea
3.15 pm – 4.15 pm	Session 2: **Q&A with Prof. Michael Biercuk**, Founder & CEO, Q-CTRL **Co-chaired by: Pavlina Naydenova, Dzung Do-Ha (MTD)**
4.15 pm – 5.00 pm	Refresh & prepare for travel
5.00 pm – 7.00 pm	Bus transfer to Katoomba
7 pm onwards	Check-in and dinner, The Carrington Hotel, Katoomba

Day 2

Tuesday, 5th August	**The Carrington Hotel, Katoomba, NSW** The Carrington Hotel, Ballroom
7.00 am – 8.00 am	Breakfast, The Carrington Hotel, Katoomba
8.00 am – 9.30 am	Session 1: **Pitch Your Science** by Niall Byrne, Creative Director, Science in Public **Chaired by Pavlina Naydenova**
9.30 am - 9.45 am	Morning tea
9.45am - 11.15 am	Session 2: **Write with Impact: Insights from a Nature Editor** by Susan Allison, Consulting Editor, Nature **Chaired by: Kyle Clunies-Ross**
11.15 am – 2.45 pm	Lunch & Outdoors **Buunyal tour** **(accessible; organizer: Angela Hermann)** **Three Sisters hiking** **(moderate difficulty hike; organizers: Meryem Duman & Sergey Kruk)** **Jamison Lookout** **(accessible; organizers: Meryem Duman & Sergey Kruk)**
2.45 pm – 4.15 pm	Session 3: **Getting your Research into Policy and Practice** by Caitlin Curtis, UQ Business School **Chaired by Angela Hermann & Sergey Kruk**
4.15 pm – 4.30 pm	Afternoon tea
4.30 pm – 6.00 pm	Session 4: **Panel on Individual Fellowships** with David Simpson, Liz Hinde, Pavlina Naydenova, Sergey Kruk **Chaired by Haibo Yu**
6.00 pm onwards	Dinner jointly with the QUBIC Themes Workshop, networking

Contacts

QUBIC EMCR Committee:	Dr Pavlina Naydenova	p.naydenova@uq.edu.au
	Dr Sergey Kruk	sergey.kruk@uts.edu.au
QUBIC MTD Portfolio:	Dr. Martin Sadraeian	mohammad.sadraeian@uts.edu.au

Mon Session 1. **Transdisciplinary Innovation**

Abstract: Learn how to solve society's most complex challenges through creativity, innovation and collaboration. The transdisciplinary approach responds to the future of work and is about building expertise beyond discipline specific boundaries.

Dr Helena Robinson is a Senior Lecturer in the TD (Transdisciplinary) School at UTS. Her scholarship straddles museum theory and practice, transdisciplinarity, and educational research. Grounded in her professional experience as a curator and collection manager, Helena's museum-focused research explores meaning-making in museums through the interaction of curatorial disciplinary practices, institutional governance structures, cultural policy, and stakeholder agency. Helena has extensive experience in problem-based experiential learning, focused on complex problem-solving and innovation in partnership with external industry, not-for-profit, and government stakeholders. Her educational research examines how students learn and academics teach in a transdisciplinary context, with a special interest in the dynamics of collaboration.

Dr Jan Henrik Gruenhagen is a Lecturer in Innovation and Entrepreneurship and the Deputy Director of the Diploma in Innovation at the Transdisciplinary (TD) School at UTS. His research interests include international entrepreneurship, the new venture creation process, innovation systems, entrepreneurial ecosystems and the development, adoption and diffusion of new technologies. Prior to joining UTS, Jan worked as a Postdoctoral Research Fellow at the Centre for METS Business Innovation at QUT Business School researching firm and system level enablers and barriers to technology development, adoption and diffusion. Prior to that, Jan was a journalist, editor and news anchor for radio and print media in Germany.

Mon Session 2. **Q&A with Prof. Michael Biercuk**

Abstract: In this session we will have a conversation with Prof. Michael Biercuk on innovation, quantum science, careers and how to communicate with different audiences.

Prof. Michael J. Biercuk is a quantum physicist, innovator, and Director of the Quantum Control Laboratory at the University of Sydney. His group is working to develop a new generation of advanced technologies powered by the strangest phenomena in quantum physics – Quantum Tech. As an expert in quantum physics and quantum technology Michael is also the founder and CEO of Q-CTRL, a quantum technology company. Q-CTRL is supported entirely by venture capital and operates from the campus of the University of Sydney. Michael was educated in the United States, earning his undergraduate degree from the University of Pennsylvania, and his Master's and Doctorate degrees from Harvard University. He held a research fellowship in the Ion Storage Group at NIST Boulder under the supervision of 2012 Nobel Laureate in Physics Dr. David Wineland, and has served as a consultant to US Defence Agency DARPA, helping to steer government venture investments in advanced technology. As an academic Michael is a regular contributor to both the technical literature and the popular press, driving public debate on issues pertaining to innovation, technology policy, and the role of science in society. He has spoken at TEDxSydney and appeared on ABC's Q&A, along with presenting numerous keynote addresses to major business and public sector audiences.

Pitch Your Science

Tuesday 5 August - 8am to 10am

Abstract: Find out what makes a good pitch, write one, pitch it and get some feedback in this 2-hour workshop with Science in Public. All researchers need to be able to get to the point of what it is they do and what problem they are investigating and solving. Whether that's for your local MP to notice you and the value of your research; convincing an industry partner to put in some money; or presenting your research to a general audience.

We ask that you get ready for this workshop by: Writing bullet points for a one-minute pitch of an aspect of your work: Prepare a few dot points, including the three key messages you'd like to get across in your pitch. If you're struggling with this, think about the last time you wrote a plain English summary at the front of a grant application or possibly how you explain your work to a family member.

Niall Byrne is a science writer and publicist based in Melbourne. The focus of his work is helping scientists bring their work into the public space through the media, events and festivals. He also guides science organisations in the development of communication strategies to reach their stakeholders, customers and the public. Recent clients include: Nature; Monash University, The Australian Institute of Marine Science and the GAVI Alliance.

- story-telling and publicity for the Prime Minister's Science Prizes (2004-2018), L'Oréal For Women in Science Fellowships (2007-2015), the Eureka Prizes (2003-2006; 2013-2015), and the Clunies Ross Foundation (1998-2004)
- working with CERN on the Australian end of the Higgs boson discovery at the High Energy Physics Conference (2012)
- conference director, 5th World Conference of Science Journalists in Melbourne in 2007, and the World Congress of Science and Factual Producers in 2009
- development and management of the Fresh Science program (1998-present)
- a series of supplements for Nature (2003-2014)
- re-building the public profile of CSIRO Australian Animal Health Laboratory (1988-1998)
- CSIRO's communication response to disease emergencies such as equine morbillivirus, bat lyssavirus and pilchard deaths

Tue Session 2. **Write with Impact: Insights from a *Nature* Editor**

Abstract: The workshop on scientific writing and publishing, delivered by a Nature Portfolio editor, gives researchers an unparalleled insight into publishing at top journals. The workshop provides a unique overview of both the writing and the publishing process at highly selective journals. The editor will share her expert insight into what makes an exemplary paper and will discuss how participants can improve their scientific writing skills to create a polished manuscript that is impactful and appealing to the transdisciplinary audience.

Susan Allison is the Chief Editor of Nature Reviews Nephrology and a Consulting Editor – Nature. After completing an honours degree in Biochemistry at the University of Otago, New Zealand, Susan moved to Sydney to take up a PhD position at the Garvan Institute of Medical Research, investigating the mechanisms of anabolic bone formation. Susan then moved to Sweden to undertake postdoctoral research at the Stem Cell Institute at Lund University. She left the bench to enter a career in scientific publishing in 2008, joining *Nature Reviews Gastroenterology & Hepatology* as Associate Editor, and was appointed Chief Editor of *Nature Reviews Nephrology* in 2009. In June 2020 Susan took on an expanded role as Consulting Editor for *Nature*.

Buunyal tour, Three Sisters or Wentworth falls and Jamison Lookout

The Buunyal tour is an authentic Indigenous experience offered at Scenic World. The Buunyal tour is the only experience of its kind in the Blue Mountains. It is the ideal experience for those looking to see the natural wonders of the Blue Mountains through the eyes of the oldest living culture on earth. The interactive and guided experience celebrates adults and kids connecting with the Country. The whole family can experience the beauty of walking in Gundungurra Country and learn about local lore and culture along the way. An Indigenous guide leads the 120-minute experience, which includes the Scenic Railway, Cableway and Skyway, and the 10-minute rainforest boardwalk. Guests will enjoy an intimate and personalised experience of Gundungurra Country. Along the tour, you'll hear traditional Indigenous stories, interact with the surrounding ecosystem, learn about the importance of native animals, plants, and the seasons in Indigenous culture, and more.

Introductio to our guide for the Buunyal tour **David King (AKA Dingo Darbo): "**Hi, I'm David King, also known as Dingo Darbo — a proud Gundungurra Man, member of the Gundungurra Aboriginal Heritage Association Incorporated (GAHAI), and a Gully Traditional Owner (GTO). I grew up on Burramatta clan Country, now known as the Parramatta district. As a young fella, my mother would often take me to the Gedumba clan area (Katoomba), a place that always felt like home. It wasn't until later, when my Uncle opened the door and my mother shared her stories, that I found my true connection to family and Country. Today, I am a passionate advocate for Indigenous culture, land management, and community. I hold a Graduate Diploma in Natural Cultural Resource Management (Deakin University) and a Certificate IV in Indigenous Leadership (AILC).As a Blue Mountains Bushcarer, Landcarer, and Swampcarer, I've been honoured with awards including the BMCC NAIDOC Recognition Award, Hard Yakka, Bushcare Legend, and Regional and NSW Landcare Indigenous Land Management Awards through Garguree Swampcare. Through education, cultural awareness, and community facilitation, I remain deeply committed to sharing and strengthening connections to Country, Culture, and Community."

The Three Sisters is the Blue Mountains' most spectacular landmark. Located at Echo Point Katoomba, around 2.5 kilometres from the Great Western Highway, this iconic visitor attraction is experienced by millions of people each year. The Three Sisters is essentially an unusual rock formation representing three sisters who according to Aboriginal legend were turned to stone.

Jamison Lookout near the Wentworth falls provides an accessible experience in Katoomba's mountain ranges overlooking Jamison Valley and Kings Tableland. Bring a thermos, sit, relax, and enjoy the view.

Tue Session 3. **Getting your Research into Policy and Practice**

Abstract: This interactive 90-min workshop is designed for academics, professionals, and students who want to improve their understanding of the political and government landscape and how to frame and promote their research to inform and help shape policy.

Dr Caitlin Curtis, UQ Business School, is interested in science and technology and their impacts on society. She comes from a robust science foundation in genomics with subsequent training and experience in policy and communication. More recently, her work has expanded to be more interdisciplinary, investigating the impact of science and emerging technology on society - with a particular focus on trust in artificial intelligence and emerging genomics technologies She has a deliberate focus on public and stakeholder engagement to foster the important debates required for the responsible introduction of technology. Dr Curtis is a recipient of the 'ABC Top 5 Scientist Media Residency Award', and the Australian Institute of Science & Policy Tall Poppy Science Award', recognizing excellence in both research and science communication. She was also a Queensland Flying Scientist, with the Office of the Queensland Chief Scientist.

Tue Session 4. **Panel on Individual Fellowships**

Abstract: Ready to become a Chief Investigator? Learn from the success (and MANY failures) of your colleagues on how to write your own winning Fellowship application.

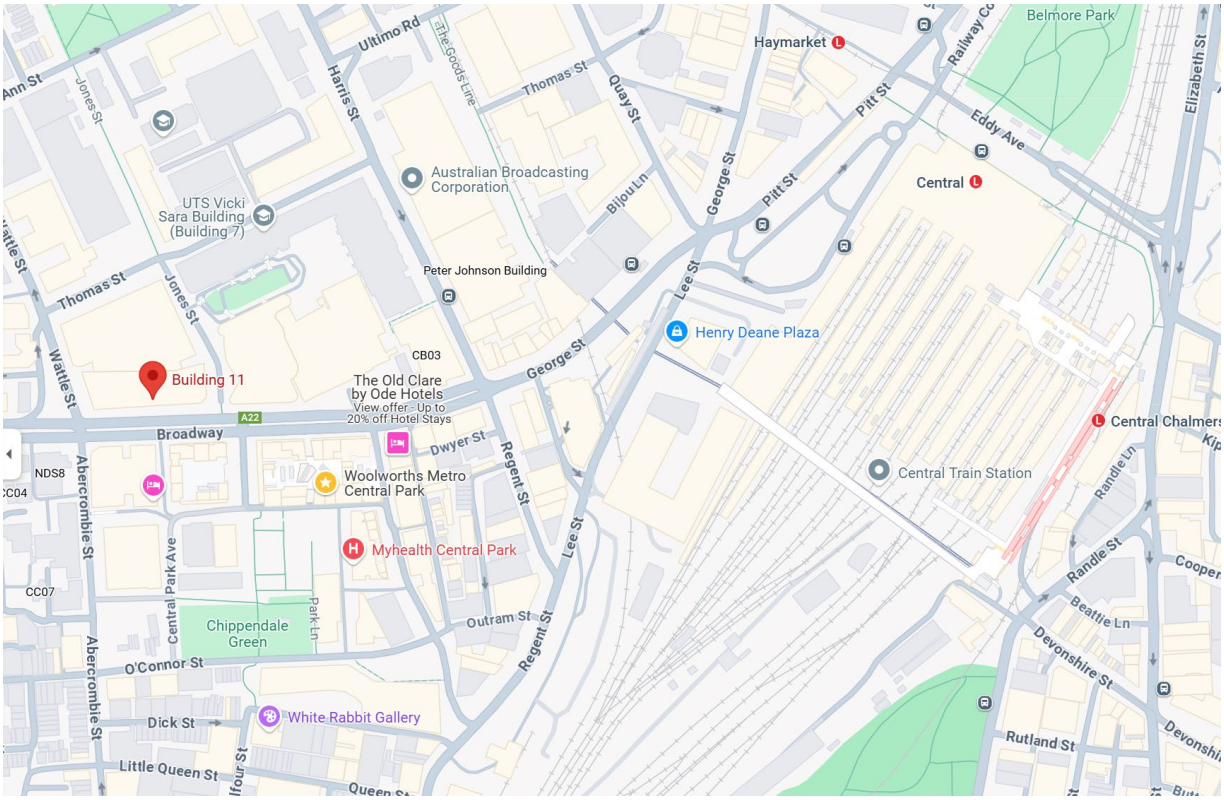
A/Prof David Simpson is a Haimson Associate Professor in physical biosciences within the School of Physics at The University of Melbourne. He obtained his PhD in applied physics from Victoria University and has spent the past decade researching and commercialising quantum-based technology. His current research is focused on diamond-based quantum sensors for biomedical and precision magnetometry applications. He has pioneered the development of high-resolution imaging techniques to visualise the electrical and magnetic properties of biological systems. These advances have led to the creation of two start-up companies which A/Prof Simpson has co-founded Chromos Laboratories and FeBI Technologies. These commercial activities seek to apply quantum sensing technology to improve the diagnosis, treatment, and management of neurological and iron-related disorders.

A/Prof Elizabeth Hinde is a cellular biophysicist who develops methods based on fluorescence lifetime and correlation spectroscopy to investigate the role of live cell nucleus architecture in regulating DNA target search and maintenance of genome integrity.

Dr Pavlina Naydenova is a National Intelligence Postdoctoral Grant (NIPG) Research Fellow at the University of Queensland and an affiliate of the Australian Research Council Centre of Excellence in Quantum Biotechnology. She investigates protein dynamics at the single molecule level using biomolecular optomechanics. Pavlina earned her PhD in pharmacognosy and phytochemistry from the Medical University of Sofia, Bulgaria, where she was recognised for her research on plant-derived small molecules for chemotherapy. She is a former SCIEX Fellow, based at the University of Zurich, where she was researching plant epigenetics. Prior to joining Warwick Bowen's lab as a NIPG Fellow, Pavlina was a program manager and industry engagement manager in the university sector in Australia.

Dr. Sergey Kruk (University of Technology Sydney) builds and studies tiny optical devices—so small that thousands of them could fit into a cross-section of human hair. These nanoscale components help control light in new and powerful ways, with potential applications in quantum imaging, communications, and computing. He completed his undergraduate university studies in Belarus and earned a PhD in Physics from the Australian National University. Sergey will share his experience with individual fellowships from Alexander von Humboldt Foundation, Marie Curie Actions and the Australian Research Council.

Monday venue:
Building 11, Level 6, Room 408 (CB11.06.408)
Street address: 81 Broadway, Ultimo. Sydney NSW 2007



Tuesday venue:
The Carrington Hotel, Ballroom
Street address: 15-47 Katoomba St, Katoomba NSW 2780