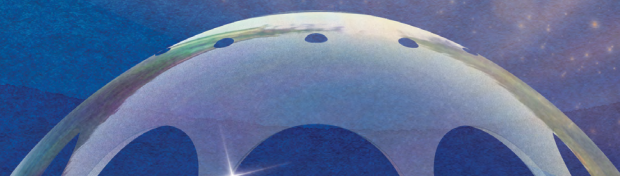




Australian
Academy of
Science

SCIENCE AT THE SHINE DOME 2026



PROGRAM
15–17 SEPTEMBER

AUSTRALIAN ACADEMY OF SCIENCE

ACKNOWLEDGEMENT OF COUNTRY

The Australian Academy of Science acknowledges and pays respects to the Traditional Owners of all the lands on which the Academy operates, and where its Fellows and employees live and work.

The Academy recognises Australia's Aboriginal and Torres Strait Islander peoples as the first innovators and scientists of this land, and honours their enduring connection to Country, from which we are committed to learn. We pay our respects to, and recognise the cultural authority of, their Elders past and present.

The Academy is honoured to have Aunty Violet Sheridan at Science at the Shine Dome 2026 on Tuesday afternoon to officially welcome all guests to Country and the Shine Dome for this event.

Artwork: Richard Allan, Director, Traditional Core.



AUSTRALIAN ACADEMY OF SCIENCE

PRESIDENT'S WELCOME

Thank you for joining us at the home of Australian science. It is my pleasure, in my first year as Academy President, to celebrate the outstanding achievements of our 2026 Fellows and awardees.

To our newly elected Fellows, welcome. The Academy exists because generations of Fellows have contributed their intellect, leadership and service to advance science for the benefit of all. Congratulations on this significant achievement.

To our 2026 awardees, congratulations. Your work represents the very best of Australian science and offers inspiration for the future. I look forward to seeing the impact of your contributions in the years ahead.

To all delegates, this is your opportunity to celebrate, connect and exchange ideas. I hope you leave inspired and proud to be part of Australia's science community.

We gather during a pivotal moment for Australian science. This year, the Academy is leading the Restore Science campaign, calling for the restoration of funding to Australia's research and development system. You can learn more at restorescience.com.au.

Science at the Shine Dome would not be possible without the generosity and support of our sponsors, donors and partners, and the many people who contribute their time and expertise. On behalf of the Academy, thank you for helping to bring our scientific community together.

I would also like to thank my fellow Council members for their dedication, and leadership in advancing the work of the Academy.

I hope you enjoy Science at the Shine Dome 2026.

Professor Samuel Berkovic AC PresAA FAHMS FRS
President, Australian Academy of Science



AUSTRALIAN ACADEMY OF SCIENCE COUNCIL



PRESIDENT

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AC PresAA FAHMS FRS



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Professor Stephen Simpson
AC FAA FRS



SPOKESPERSON FOR INTEGRITY

Professor Naomi McClure-Griffiths
FAA

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PROGRAM

Colour coding in the program matches the lanyards worn by delegates.

 New Fellows  EMCRs  Awardees  Event partners

TUESDAY 15 SEPTEMBER 2026

9.30am	Main foyer	Registrations open all day
10.00am – 11.00am	Ballroom, Ian Potter House	 Asia-Pacific Mentoring Programme: Mentees meet and greet (invitation only)
11.00am	Ian Wark Theatre	 Asia-Pacific Mentoring Programme: Launch (invitation only)
12.30pm	Jaeger Room	Lunch
	Main foyer	 Asia-Pacific Mentoring Programme: Group photo (meet in main foyer)
1.30pm – 3.00pm	Ian Wark Theatre	 New Fellows briefing, tour and Academy showcase (invitation only)
	Fenner Room	 Asia-Pacific Mentor training session (invitation only)
	Suzanne Cory Room	 Asia-Pacific Mentor training session (invitation only)
1.30pm – 3.30pm	Ian Potter House Ballroom	 EMCR workshop: Grant writing (registered participants only) <i>Developing a robust grant proposal, The GrantEd Group</i>
	Dorothy Hill Room	 EMCR workshop: Science media (registered participants only) <i>Research in the mainstream media, AusSMC</i>
3.00pm	Jaeger Room	Afternoon tea
4.00pm	Ian Wark Theatre	Welcome to Country: Aunty Violet Sheridan, Ngunnawal Elder
		President's welcome: Professor Samuel Berkovic AC PresAA FAHMS FRS President, Australian Academy of Science
		 Platinum Partner address: Dr Adele Morrison , 2022 Malcolm McIntosh Prize for Physical Scientist of the Year, Prime Minister's Prizes for Science
		 New Fellows 2026 Charter Book Ceremony
		Professor Nicole Bell FAA , The University of Melbourne
		Professor Céline Boehm FAA , The University of Sydney
		Professor Jochen Brocks FAA , Australian National University
		Professor Graeme Cumming FAA , The University of Western Australia
		Professor Kishan Dholakia FAA , Adelaide University
		Professor Aleksandra Filipovska FAA FAHMS , The University of Western Australia
		Professor Jennifer Flegg FAA , The University of Melbourne
		Professor Bob Furbank FAA , Australian National University
		Professor Katherine Kedzierska FAA FAHMS , The University of Melbourne
		Professor Yun Liu FAA FTSE , Australian National University
		Emeritus Professor John Long FAA , Flinders University
		Professor Laura Mackay FAA FAHMS , Walter and Eliza Hall Institute of Medical Research (WEHI)
		Professor Stefan Maier FAA , Monash University
		Professor Paul Martin FAA , The University of Sydney
		Professor Nicki Packer FAA , Macquarie University
		Dr Deborah Rathjen FAA FTSE , Carina Biotech
		Professor David Raubenheimer FAA , The University of Sydney
		Professor Tim Schmidt FAA , UNSW Sydney
		Professor Enrico Valdinoci FAA , The University of Western Australia
		Professor Huanting Wang FAA FTSE , Monash University
		Ms Sally Williams FAA FTSE , Australian Research Council
		Professor Alpha Yap FAA , The University of Queensland
		Professor Yong-Guan Zhu FAA , Chinese Academy of Sciences (Corresponding Member)
		 Previous New Fellows Admission Ceremony
		Professor Derek Leinweber FAA , Adelaide University (Elected 2025)
		Professor Gordon Smyth FAA , Walter and Eliza Hall Institute of Medical Research (WEHI) (Elected 2021)
5.45pm	Jaeger Room	 New Fellows and Council celebratory toast
6.00pm – 7.45pm	Jaeger Room	 EMCR evening networking function

PROGRAM

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 New Fellows  EMCRs  Awardees  Event partners

WEDNESDAY 16 SEPTEMBER 2026

8.15am	Main foyer	Registrations open all day
	Jaeger Room	Arrival tea and coffee
8.45am	Ian Wark Theatre	President's welcome: Professor Samuel Berkovic AC PresAA FAHMS FRS President, Australian Academy of Science
		 Diversity and Inclusion Partner address: Professor Sue Harrison FTSE, Deputy Vice-Chancellor – Research and Innovation, The University of Queensland
		 New Fellows presentations (10 minutes + 2-minute Q&A)
		Professor Nicole Bell FAA, The University of Melbourne <i>New windows on the invisible universe: Dark matter and neutrinos</i>
		Professor Céline Boehm FAA, The University of Sydney <i>Light dark matter: How old assumptions kept us from exploring every option</i>
		Professor Cyrille Boyer FAA, UNSW Sydney <i>Designing advanced materials using light</i>
		Professor Jochen Brocks FAA, Australian National University <i>Konrad Bloch's lost world of complex life</i>
		Professor Graeme Cumming FAA, The University of Western Australia <i>Spatial resilience in social-ecological systems</i>
		Professor Kishan Dholakia FAA, Adelaide University <i>Structured light</i>
		Professor Aleksandra Filipovska FAA FAHMS, The University of Western Australia <i>The biology of energy: From molecules to medicine</i>
		Professor Jennifer Flegg FAA, The University of Melbourne <i>Mathematics against malaria: How do we fight resistance to available drugs?</i>
10.50am	Jaeger Room/ Dorothy Hill Room/ Lawns	Morning tea
	Main foyer	 Group photo of New Fellows (meet in main foyer)
11.20am	Ian Wark Theatre	 New Fellows Presentations (10 minutes + 2-minute Q&A)
		Professor Bob Furbank FAA, Australian National University <i>From photons to food: Improving crop photosynthesis and yield</i>
		Professor Katherine Kedzierska FAA FAHMS, The University of Melbourne <i>Defining immune responses towards emerging and re-emerging viral infections</i>
		Professor Yun Liu FAA FTSE, Australian National University <i>Pull one hair, move the whole body: Decoding materials for the AI era</i>
		Emeritus Professor John Long FAA, Flinders University <i>In search of the origins of the human body plan</i>
		Professor Laura Mackay FAA FAHMS, Walter and Eliza Hall Institute of Medical Research (WEHI) <i>Immunity in context: How tissues instruct immune responses</i>
		Professor Stefan Maier FAA, Monash University <i>Nanophotonics: Bringing light to the nanoscale</i>
		Professor Paul Martin FAA, University of Sydney <i>First steps on visual pathways</i>
		Professor Nicki Packer FAA, Macquarie University <i>Illuminating the glycome: You cannot see what you do not look for</i>
		 Platinum Partner address: Professor Tanya Monro AC FAA FTSE, Chief Defence Scientist, Department of Defence
1.20pm	Jaeger Room/ Dorothy Hill Room/ Lawns	Lunch
2.20pm – 4.30pm	Ian Wark Theatre	 New Fellows presentations (10 minutes + 2-minute Q&A)
		Dr Deborah Rathjen FAA FTSE, Carina Biotech <i>From discovery to patient impact: The science and architecture of biomedical translation</i>
		Professor David Raubenheimer FAA, The University of Sydney <i>Appetites, insects, apes and obesity</i>
		Professor Tim Schmidt FAA, UNSW Sydney <i>The alchemy of light: From interstellar space to the future of solar energy</i>

PROGRAM

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 New Fellows  EMCRs  Awardees  Event partners

WEDNESDAY 16 SEPTEMBER 2026

2.20pm – 4.30pm	Ian Wark Theatre	Professor Enrico Valdinoci FAA , The University of Western Australia <i>Marginis exiguitas non caperet</i>
		Professor Huanting Wang FAA FTSE , Monash University <i>Membranes and nanomaterials for sustainable separation technologies</i>
		Ms Sally Williams FAA FTSE , Australian Research Council <i>The science of translation: Engineering Australia's deep tech ecosystem</i>
		Professor Alpha Yap FAA , The University of Queensland <i>Neighbourhood watch: Preserving epithelial health against the challenge of ordinary life</i>
		Professor Yong-Guan Zhu FAA , Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences <i>Antimicrobial resistance in One Health</i>
6.30pm – 10.30pm	Australian Parliament House	Gala Dinner , supported by The University of Sydney Pre-registration required
		Premier awards: Presented by Senator the Hon Tim Ayres , Minister for Science
		Presentation of the 2026 Macfarlane Burnet Medal: Professor Alan Cowman AC FAA FAHMS FRS , Walter and Eliza Hall Institute of Medical Research (WEHI)
		Presentation of the 2026 Ruby Payne-Scott Medal: Professor Zaiping Guo FAA FTSE , Adelaide University
		Moderator: Peter Hartcher , political editor and international editor, <i>The Sydney Morning Herald</i> In conversation with: Bran Black , Chief Executive, Business Council of Australia Professor Veena Sahajwalla AO FAA FTSE , UNSW Sydney Professor Margaret Sheil AO FAA FTSE , Australian Academy of Science

THURSDAY 17 SEPTEMBER 2026

8.15am	Main foyer	Registrations open all day
	Jaeger Room	Arrival tea and coffee
8.45am	Ian Wark Theatre	 Academy Awards 2026
		 2026 Macfarlane Burnet Lecture Professor Alan Cowman AC FAA FRS , Walter and Eliza Hall Institute of Medical Research (WEHI) <i>Discovery of novel antimalarials and their use as chemical tools to decipher new biology of the parasite: A pharma-academia collaboration</i>
		 2026 Ruby Payne-Scott Lecture Professor Zaiping Guo FAA FTSE , Adelaide University <i>Battery innovation for a circular future</i>
		 2026 David Craig Medal Professor Philip Gale , University of Technology Sydney <i>Anion binding and transport: In models and in cells</i>
		 2026 Suzanne Cory Medal Professor Hala Zreiqat AM FAA FTSE FAHMS , The University of Sydney <i>Engineering regeneration: Personalised biomaterials for musculoskeletal repair and healthy ageing</i>
10.45am	Jaeger Room/ Dorothy Hill Room/ Lawns	Morning tea
	Main foyer	 Awardee group photo (meet in main foyer)
11.15am	Ian Wark Theatre	 2026 Mawson Medal Professor Neil Saintilan , Macquarie University <i>Wetlands on the front line of climate change</i>
		 2026 Gustav Nossal Medal Professor Sant-Rayn Pasricha , Walter and Eliza Hall Institute of Medical Research (WEHI) <i>Controlling anaemia in low-income countries: From discovery to policy</i>
		 2026 Nancy Millis Medal Professor Sarah-Jane Dawson FAHMS , Peter MacCallum Cancer Centre <i>Circulating tumour DNA to facilitate precision cancer medicine</i>
		 2026 Brian Anderson Medal Professor Liang Zheng , Australian National University <i>Bitter lesson in image generation</i>

PROGRAM

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👤 New Fellows 👤 EMCRs 👤 Awardees 👤 Event partners

THURSDAY 17 SEPTEMBER 2026

SCIENCE AT THE SHINE DOME 2026

12.30pm	Jaeger Room/ Dorothy Hill Room/ Lawns	Lunch
	Ian Potter House Ballroom	👤 Awardees, supporters and donors lunch (invitation only)
2.00pm	Ian Wark Theatre	👤 Medal presentations for 2026 awardees 👤 2026 Anton Hales Medal Dr Mark Hoggard, Australian National University 👤 2026 Christopher Heyde Medal Dr Stephen Muirhead, Monash University Dr Belinda Phipson, Walter and Eliza Hall Institute of Medical Research (WEHI) 👤 2026 Dorothy Hill Medal Dr Caroline Eakin, Australian National University 👤 2026 Fenner Medal Dr Kai Xun Chan, Australian National University 👤 2026 Frederick White Medal Dr Adele Morrison, Australian National University 👤 2026 Gottschalk Medal Dr David Khoury, UNSW Sydney 👤 2026 John Booker Medal Dr Jianguang Fang, University of Technology Sydney 👤 2026 Le Fèvre Medal Dr Yu Heng Lau, The University of Sydney Dr Karolina Matuszek, Monash University 👤 2026 Pawsey Medal Dr Cullan Howlett, The University of Queensland 👤 2026 Ruth Stephens Gani Medal Associate Professor Miguel Rentería, QIMR Berghofer Dr Nicole Warrington, The University of Queensland 👤 2026 Aboriginal and Torres Strait Islander Scientist Award Mr Jacob Birch, The University of Queensland Dr Cassandra Sedran-Price, The University of Sydney 👤 2026 Max Day Environmental Science Fellowship Award Dr Meng-Han Joseph Chung, University of Canberra Mr Jules Farquhar, Monash University Dr Wei Wei, University of Technology Sydney (<i>highly commended</i>) Closing reflections: Professor Samuel Berkovic AC PresAA FAHMS FRS President, Australian Academy of Science
2.55pm		Session close
3.30pm	Main foyer	Coaches to airport: meet outside main entrance of the Shine Dome

TUESDAY 15 SEPTEMBER

ASSOCIATED EVENTS

EARLY- AND MID-CAREER RESEARCHER (EMCR) WORKSHOPS

Developing a robust grant proposal

Facilitated by Dr Catherine Dandie, The GrantEd Group

This workshop will walk research grant applicants through the four essential elements of a robust proposal: significance, quality, innovation and feasibility.

Each attendee will come away with answers to these questions for their own research projects:

- Who needs your research, within and outside of academia?
- What appropriate methodologies, methods, design elements or concepts do you need to ensure a high-quality project?
- What novel and innovative elements are built into your research plan, and how have you balanced this with risk?
- What involvement do you need from other organisations, policymakers, practitioners, networks or researchers to ensure your research is significant and feasible?

Research in the mainstream media

Facilitated by Lyndal Byford, Australian Science Media Centre (AusSMC)

The Science Media Savvy workshop is designed to increase your confidence and give you the knowledge and media skills to engage more effectively with the wider public through the media.

Learn what makes a story, what drives the news agenda, and practical techniques to improve communication, avoid jargon and tailor your message to your audience.

This workshop will provide tips on planning and preparing for media interviews, lessons on developing a story to improve stakeholder engagement, funding applications, public talks and outreach. We will also explore the potential benefits and pitfalls of social media, the different platforms available, how to get started and how to build an online presence that gets you noticed.

ACADEMIC MENTORING PROGRAM

International Science Council Regional Focal Point for Asia and the Pacific

The Asia-Pacific Academic Mentoring Program connects early-career researchers from Asia and the Pacific with senior scientists and scientific leaders from across Australia.

The one-year program aims to guide young scientists to become future leaders in academia within their home region.

Mentees and mentors will attend Science at the Shine Dome, supported by the International Science Council Regional Focal Point for Asia and the Pacific (ISC RFP-AP).



**International
Science Council**
Regional Focal Point for
Asia and the Pacific





Australian Government

THE PRIME MINISTER'S PRIZES FOR SCIENCE

Who will you nominate for the 2027 science and innovation prizes?

"Receiving this prize is incredible and the most important recognition I've received in my life. It allows our community to see the importance of the field of science and the impact of air quality in our world."

Distinguished Professor Lidia Morawska PHD FAA FRSB AAAS IHM FTSE

Distinguished Professor and Australian Laureate Fellow, School of Earth and Atmospheric Sciences,
Queensland University of Technology
Director, International Laboratory for Air Quality and Health, Queensland University of Technology
2025 Prime Minister's Prize for Science



"It's a remarkable honour to receive this prize. It represents a wonderful tribute to the researchers, innovators and policy makers who are working together to position Australia as the best place in the world to study, research and work in quantum."

Dr Vikram Sharma FACS

CEO and Founder, Quintessence Labs
2025 Prime Minister's Prize for Innovation

About the Prime Minister's Prizes for Science

The Prime Minister's Prizes for Science are Australia's most prestigious science prizes. They comprise of:

- **5 science prizes**, including **2 for innovation**, that span diverse career stages and disciplines across science, technology, engineering and mathematics
- the **knowledge systems prize** that recognises the practice and preservation of Aboriginal and Torres Strait Islander knowledge systems
- **2 science teaching prizes** for primary and secondary school science teachers who inspire students to engage in STEM.

Recipients receive a medallion, prize money of A\$50,000 or A\$250,000, national recognition and exposure to new opportunities and networks.

Nominations for 2027 will open soon.

The Prizes are funded through the Australian Government's *Inspiring Australia – Science Engagement Program*.



Scan the QR code to find out more at industry.gov.au/pmprizes
Contact the Prizes at pmprizes@industry.gov.au

NEW FELLOWS 2026



PROFESSOR BOB FURBANK FAA

Australian National University

Professor Bob Furbank is an internationally recognised pioneer of multiscale plant biology. His research seeks to improve crop yields by enhancing photosynthesis in both C3 crops like rice and wheat and C4 crops like maize and sorghum. His novel insights span gene discovery to engineering to *in silico* tools that increase field crop performance, and he identified the rate-limiting steps in the C4 photosynthesis pathway using genetic modification. He established Australia's first Plant Phenomics Centre, allowing exploration of photosynthesis and plant performance from the leaf to the field. Professor Furbank has also led global philanthropic initiatives to boost rice photosynthetic performance.

From photons to food: Improving crop photosynthesis and yield

Every atom of carbon in the carbohydrate, protein and fibre we eat comes from atmospheric CO₂ assimilated by photosynthesis using energy from sunlight. Crop breeders of the 1960s used just a handful of new genes to produce the 'green revolution' in cereal crop production, which has been feeding the burgeoning world population ever since. The gains in yield from these genes are now becoming exhausted and crop breeders are looking elsewhere for yield gains. Yields are now limited by the efficiency of photosynthesis. This 'yield ceiling', alongside the deleterious effects of climate change on water availability and heat stress, have made photosynthesis a leading target for crop breeding. In this presentation Professor Furbank describes approaches to rapidly assess crop photosynthesis and improve its efficiency using crop biotechnology and synthetic biology to increase yield and stress resilience.



PROFESSOR CYRILLE BOYER FAA

UNSW Sydney

Professor Cyrille Boyer is a polymer chemist in the School of Chemical Engineering at UNSW. His pioneering work on light-activated polymerisation using photocatalysts has transformed the way we create and manipulate polymers – the fundamental components of countless everyday materials. This innovation has enabled the precise synthesis of intricate polymers and polymeric nanoparticles, opening new possibilities in fields such as antimicrobial polymers, advanced 3D-printed materials and sophisticated nanoparticle design. An advocate for sustainability, Professor Boyer also applies his expertise to develop innovative depolymerisation and recycling techniques using photocatalysts. In 2015, he was awarded the Malcolm McIntosh Prize for Physical Scientist of the Year.

Designing advanced materials using light

Polymers underpin much of modern technology yet synthesising them with precise control remains challenging. Professor Boyer leads a group developing light-driven polymerisation methods that use ordinary visible light to initiate and control the chemistry, operating at low energy and without the need to remove oxygen beforehand. This talk presents two applications. First, a rapid, light-mediated approach to 3D printing that yields materials with tuneable mechanical properties, self-healing capability and the ability to be re-functionalised after printing. Second, the same oxygen-tolerant method applied to the parallel synthesis and screening of polymer libraries, including candidates with antibacterial and antifungal activity. Together, these tools offer new opportunities across advanced manufacturing, nanomedicine and energy applications.



PROFESSOR STEFAN MAIER FAA

Monash University

Professor Stefan Maier is an experimental physicist who is currently Head of the School of Physics and Astronomy at Monash University. He is known for his pioneering studies in nanophotonics, plasmonics and nanophotonic materials. He has conducted experiments to understand and tailor light-matter interactions below the diffraction limit of light with a particular focus on the guiding, localisation and conversion of electromagnetic energy with metallic nanoparticles. Professor Maier has shaped the development of the research field of plasmonics and its interdisciplinary applications in biosensing, optoelectronics and energy conversion. He extended key nanophotonic concepts to the infrared and provided first demonstrations of designer nanoscale mid-infrared resonators via localised surface phonon polaritons. He is a Fellow of Optica and the Institute of Physics.

Nanophotonics: Bringing light to the nanoscale

Control over light is one of the pillars underpinning modern technologies – from the internet to solar cells, medical imaging and photocatalysis. However, at the nanoscale, handling of light – how we store, guide and make it interact with matter – becomes uniquely challenging. The culprit is the wave nature of light, leading to diffraction and interference, which literally blur and blunt control of light below the scale of the wavelength. Professor Maier will discuss how a combination of the right materials and intuition from antenna design, mixed with quantum mechanics, enables control of light in these tight spaces, and how to exploit this ability for next-generation technologies.



PROFESSOR JOCHEN BROCKS FAA

Australian National University

Professor Jochen Brocks calls his field 'palaeobiogeochemistry'. He has pioneered technologies to detect traces of molecular fossils in billion-year-old sedimentary rocks, opening a new window on life in primordial oceans. This work has transformed what we know about the early evolution of our single-celled ancestors and helped solve the puzzle of why the first animals emerged on Earth. His discoveries include some of the most profound ecological transformations in our planet's history, with far-reaching implications for our understanding of the evolution of the carbon cycle and the potential for complex life on other planets. His work isolating cholesterol-like molecules – a signature of animal life – from a 558-million-year-old fossil was one of *Science's* top 10 breakthroughs across all scientific disciplines worldwide in 2018.

Konrad Bloch's lost world of complex life

In 1994, Konrad Bloch proposed a remarkable idea. The sterols that build eukaryotic cell membranes may have evolved stepwise from simpler ancestral lipids, with each modification towards cholesterol representing a Darwinian improvement. If so, traces of these primordial molecules might still be entombed in ancient rocks. Thirty years after Bloch's prediction, abundant 'protosteroids' discovered in rocks up to 1.6 billion years old reveal an unknown biosphere of stem-group eukaryotes, ancestors of all complex life. Overlooked for decades because of their primitive structures, these fossil molecules expose a hidden phase in eukaryotic evolution. Rather than a bacterial world, Earth's ancient oceans teemed with primordial nucleated cells from the deep stem of the eukaryotic tree. Their disappearance and replacement by modern eukaryotes may represent one of the most profound ecological turning points in our planet's history, and the opening act of our own evolutionary story.

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PROFESSOR GRAEME CUMMING FAA

The University of Western Australia

Professor Graeme Cumming is an interdisciplinary ecologist and conservation biologist. He is a Premier's Science Fellow at the University of Western Australia, where his current research focuses on how coastal protected areas support resilience. More broadly, his research spans landscape ecology, conservation biology and complex systems theory. He develops novel conceptual frameworks, systems models, statistical tools and empirical analyses to understand the dynamics that shape ecosystem resilience and function, and to support sustainable ecosystem management and biodiversity conservation. Among his most significant contributions are new approaches to social-ecological scale mismatches, system identity, growth trajectories in resource-dependent societies and causes of social and ecological collapse. His work extends our understanding of how shifting land- and sea-scapes influence the resilience and sustainability of people and nature.

Spatial resilience in social-ecological systems

Securing the future of the Earth's ecosystems is critical for the wellbeing of current and future generations. Biodiversity conservation is, however, a complex social-ecological problem. Its solution depends on proactive management of both people and nature within the scope of shifting economic and technological influences and demands. As a land- and seascape ecologist, Professor Cumming's research addresses the interface between people and nature, with a particular focus on the relevance of space and scale for ecosystems and biodiversity conservation. He will briefly introduce the concept of spatial resilience in social-ecological systems and then use three examples from Australian protected areas to illustrate how the context, connectivity and contributions of protected areas both influence and are influenced by their surroundings. Spatial dynamics and the social-ecological feedbacks between pattern and process are heavily under-recognised in most policy and management contexts and have direct implications for Australian ecosystems and human wellbeing.



PROFESSOR KISHAN DHOLAKIA FAA

Adelaide University

Professor Kishan Dholakia is an ARC Laureate Fellow and Director at the Centre of Light for Life. A global pioneer in biophotonics and optical physics, he has developed methods to structure light in space and time to advance the frontiers of imaging, trapping and precision measurement. This has led to original methods to image in biology and medicine with a very wide field of view, at unprecedented depth, retaining high resolution to elucidate biological processes in real time. Using the structuring of light he has expanded his impact into precision measurement including determining the wavelength of light and measuring distances to new levels of accuracy. In 2025, he was named South Australian Scientist of the Year.

Structured light

Light is extraordinary. By carefully shaping it, we can make it do remarkable things. In this talk, Professor Dholakia will explore how 'structured light' – engineered into special patterns – is opening new possibilities in imaging, precision measurement and the control of microscopic objects. Structured light enables imaging of living organisms across a wide range of scales, helping answer fundamental questions in biology while developing new tools for health care. Structured light also enables measurements of astonishing precision – for example, determining the wavelength of a laser to within an attometre (one quintillionth of a metre), which is comparable to knowing the age of the Universe to within a few days. Finally, Professor Dholakia will describe how structured light can trap, hold and rotate tiny particles no larger than a red blood cell. Spinning these particles in a vacuum at record-breaking speeds enables exquisitely sensitive measurements of properties such as viscosity.



PROFESSOR ALEKSANDRA FILIPOVSKA FAA FAHMS

The University of Western Australia

Professor Aleksandra Filipovska is an internationally recognised molecular biologist known for establishing and popularising the field of mitochondrial gene expression. She is an NHMRC Investigator at the University of Western Australia, Deputy Director of the ARC Centre of Excellence in Synthetic Biology and leads a research group at The Kids Research Institute Australia. Professor Filipovska has developed new technologies that have redefined the mitochondrial transcriptome and its regulation, accelerating diagnosis of patients with genetically inherited diseases. She has invented and licensed multiple genome-editing technologies for treatment of neurodegenerative diseases. She also serves as co-director at the Mito Foundation, advocating for the mitochondrial disease community.

The biology of energy: From molecules to medicine

Professor Filipovska's research focuses on understanding how genetic information regulates energy conversion, and how its disruption causes disease. She began by uncovering fundamental mechanisms of gene regulation and RNA biology, revealing how post-transcriptional processes shape energy metabolism. These discoveries enabled the molecular diagnosis of patients with genetic and mitochondrial disorders, helping to explain previously unsolved diseases. To understand how genetic defects lead to pathologies, her research expanded from genes to communication between organelles in cells, tissues and at an organism level. By integrating omics technologies, biochemistry and advanced imaging, she and her team have uncovered new principles governing energy metabolism. Professor Filipovska will discuss how mitochondrial architecture regulates metabolism and signalling in diseases, providing mechanistic insights into cellular vulnerability. She will describe how these discoveries have advanced precision medicine and led to new therapeutic opportunities, including small-molecule, RNA and gene-based approaches that target disease mechanisms at their source.



PROFESSOR JENNIFER FLEGG FAA

The University of Melbourne

Professor Jennifer Flegg brings mathematical rigour and expertise in advanced computational statistics to important questions in biology, medical sciences and global health. She has made substantial contributions to applied mathematics in the areas of infectious disease epidemiology – especially malaria – and partial differential equation models of tissue dynamics, including wound healing and tumour growth. Her research in and service to applied mathematics have been recognised with multiple awards, including the Australian Academy of Science's Christopher Heyde Medal in 2020. Professor Flegg currently holds a Future Fellowship and is Deputy Director of the ARC Centre of Excellence for Mathematical Analysis of Cellular Systems.

Mathematics against malaria: How do we fight resistance to available drugs?

Malaria devastates low- and middle-income countries, causing more than 280 million cases and over 600,000 deaths each year – with children under five the most vulnerable. Ambitious targets set by the World Health Organization aim to eliminate the disease in at least 35 countries by 2030. However, these targets rest precariously on our ability to treat the disease appropriately, and the growing threat of antimalarial drug resistance has been identified as a key factor standing in the way. In this talk, Professor Flegg will highlight how mathematics can help monitor the emergence and spread of antimalarial drug resistance. Results will be presented from a geostatistical model that generates spatio-temporal predictions of resistance based on prevalence data available only at discrete study locations and times. She will explain how this model output provides new insight into the spread of drug resistance – unveiling information that the data alone cannot provide.

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PROFESSOR CÉLINE BØHM FAA

The University of Sydney

Professor Céline Bøhm is an astroparticle physicist whose research has led to a paradigm shift, demonstrating that dark matter particles could be much lighter than previously considered. Her work on light dark matter has catalysed pivotal experiments like NA64, SENSEI and DAMIC, driven innovative searches at the Large Hadron Collider, and motivated low-energy particle physics experiments. The resulting simplified models framework has since become a cornerstone in the field. Her research on dark matter interactions in cosmology has also sparked new avenues, using large-scale structure surveys to constrain microscopic interactions. Professor Bøhm has also led a European Space Agency consortium and was Head of the School of Physics at the University of Sydney.

Light dark matter: How old assumptions kept us from exploring every option

Professor Bøhm will discuss how she came to understand that dark matter could be made of light particles, and how this has led to a deep transformation of the field, opening new experimental and theoretical avenues.



PROFESSOR KATHERINE KEDZIERSKA FAA FAHMS

The University of Melbourne

Professor Katherine Kedzierska is an immunologist who has advanced understanding of immune responses towards emerging and re-emerging viral infections, including pandemic, avian and seasonal influenza viruses, and SARS-CoV-2. Her studies identified host factors underlying life-threatening respiratory viral diseases and determined immune perturbations in high-risk populations. Her work defined novel and broadly cross-reactive T cell responses capable of mediating universal long-lived immunity across distinct viral variants and unravelled integrated immune networks underpinning recovery from viral infections. Professor Kedzierska was at the forefront of research on immunity to pandemic H1N1 influenza in 2009, novel avian H7N9 influenza in 2013 and the COVID-19 pandemic. She is currently Deputy Head of the Department of Microbiology and Immunology at the University of Melbourne, and Head of the Human T Cell Laboratory at the Peter Doherty Institute for Infection and Immunity.

Defining immune responses towards emerging and re-emerging viral infections

Respiratory viral infections constitute a continuing global threat to human health. This is particularly devastating when a new virus emerges and spreads rapidly worldwide, causing high fatality rates – as exemplified by the 2020 COVID-19 and 1918 influenza pandemics. Seasonal respiratory viruses also cause life-threatening diseases – particularly in vulnerable populations, including children, older adults, pregnant women, First Nations people and individuals with comorbidities. Professor Kedzierska's research defined immune responses driving recovery from mild viral infections and identified immune perturbations and early key drivers of severe respiratory viral disease. This is important knowledge for limiting circulating, emerging and re-emerging viruses through improved vaccines, immunotherapies and biomarkers – especially for high-risk groups.



PROFESSOR ENRICO VALDINOCI FAA
The University of Western Australia

Professor Enrico Valdinoci is an internationally leading researcher in the field of partial differential equations. He has made groundbreaking contributions both to classical elliptic and parabolic partial differential equations and to nonlocal partial differential equations. He is one of the founders of the field of nonlocal partial differential equations and has played a central role in developing both theory and applications of such equations. He has discovered fundamentally new and unexpected features of nonlocal partial differential equations which do not exist in the classical setting. He led the field in understanding the behaviour of such equations, particularly in instances where both nonlocality and nonlinearity are present – such as nonlocal minimal surfaces and phase coexistence models with long-range particle interactions.

Marginis exiguitas non caperet

In this short presentation, I will try to address a few basic questions: Who am I? What do I do? Why do I do it? How do I do it? But, most importantly: who cares, given that there are far more urgent things to discuss at the moment?



PROFESSOR LAURA MACKAY FAA FAHMS
Walter and Eliza Hall Institute of Medical Research (WEHI)

Professor Laura Mackay is the inaugural Sir Gustav Nossal Professor of Immunology at WEHI and Immunology Theme Leader at the Peter Doherty Institute for Infection and Immunity, University of Melbourne. She is an international leader in the field of immunological memory. Prior to her discoveries, it was erroneously thought that immune memory was controlled by bloodborne elements. Professor Mackay demonstrated this is not the case. She defined a novel population of T lymphocytes, or T cells, resident at body surfaces, showing that these tissue-embedded components were distinct from T cells circulating in the blood. Critically, she showed that tissue-resident T cells provide a dominant first-line defence against infection and cancer, revealing novel genes and pathways that can be exploited to control these cells for therapeutic gain.

Immunity in context: How tissues instruct immune responses

Our immune system operates across diverse tissues, yet much of what we know about human immunity has historically been inferred from blood. We now understand that immune cells adapt profoundly to the tissues in which they reside, acquiring specialised properties that influence how they respond to infection, cancer and tissue damage. Tissue-resident memory T cells (TRM cells) exemplify this principle, remaining positioned within organs to provide local immune surveillance and rapid protection. Their development and long-term persistence depend on interactions between immune cells and the tissues they inhabit, while distinct tissue environments generate both shared and organ-specific features of immune memory. Understanding how immune cells establish residence, adapt to local environments and maintain protective function is reshaping our view of immune surveillance and has important implications for vaccination, cancer and inflammatory disease.

AUSTRALIAN ACADEMY OF SCIENCE



PROFESSOR PAUL MARTIN FAA

The University of Sydney

Professor Paul Martin is an experimental ophthalmologist based at the Save Sight Institute at the University of Sydney. His research has transformed our understanding of the evolution and function of the visual system. His work shows how evolutionarily ancient visual pathways, that were considered vestigial in the brains of humans and monkeys, contribute to diverse and important visual functions such as colour vision and movement perception. These pathways begin in the eye, and project centrally via the lateral geniculate nucleus (LGN). Professor Martin's research overturned the long-held view of the LGN as a passive relay, instead revealing it as an active site of visual computation.

First steps on visual pathways

The eye is connected to the brain by parallel visual pathways. In humans and other primates, the two main pathways – called parvocellular and magnocellular – signal the shape and motion of objects in the visual world. But there are also about a dozen evolutionary ancient pathways named koniocellular or K-pathways. Professor Martin has led studies revealing that the K-pathway cells underlie the blue-yellow dimension of colour vision. Moreover, Professor Martin's team found that K-pathway cells can alert the brain to survival-specific threats in the visual world. Thus, the K-pathways, which were previously considered vestigial in primates, can serve conscious visual perception as well as subconscious visual functions.



PROFESSOR YUN LIU FAA FTSE

Australian National University

Distinguished Professor Yun Liu leads the Functional Material Research Group at the Australian National University. She is a world-leading applied materials chemist whose groundbreaking research in crystal and defect chemistry and materials engineering has revolutionised materials design for future technologies. She discovered colossal dielectric materials with unprecedented properties, successfully transferring this innovation to a global capacitor manufacturer. She proposed new defect concepts, discovered novel dielectric polarisation theories and corrected a half-century misconception in defect analysis, profoundly impacting academia and industry. She leverages these advances to create various innovative materials and technologies, driving progress in electronics, energy and environmental applications. She is a prominent leader dedicated to mentoring future generations, enhancing science education, giving advice on policy development and advocating for women in STEM fields.

Pull one hair, move the whole body: Decoding materials for the AI era

Materials are the foundation of technology: their atomic composition and structure dictate their properties, functions and ultimate applications. Solids are strongly correlated systems – as the Chinese idiom goes, 'pull one hair and the whole body moves'. A single atomic or local perturbation propagates through the entire structure, reshaping its behaviour as a whole. Decoding this connection requires building a rigorous, multiscale understanding of materials chemistry and structure from the atomic to the bulk scale. Translating that into the rational design and discovery of new materials remains a scientific challenge, one made newly urgent in the AI era. Professor Liu will present several case studies illustrating the central challenges in materials research today, and how her team's work bridges past approaches with future directions. Beyond the science, these examples raise broader questions: how should we train the next generation of researchers to conduct high-quality materials research, maximise the return on research investment and ultimately strengthen Australia's high-tech industry and economy?

AUSTRALIAN ACADEMY OF SCIENCE



PROFESSOR NICOLE BELL FAA
The University of Melbourne

Professor Nicole Bell is a theoretical physicist who leads the Theory Program of the ARC Centre of Excellence for Dark Matter Particle Physics. Her work on dark matter and neutrino physics has advanced our understanding of the Universe's fundamental mass components. She has shown how to measure the mass of the neutrino cosmologically, determined stringent limits on neutrino lifetime and showed that the IceCube experiment has the sensitivity to uncover new physics. She has also developed self-consistent descriptions of dark matter and demonstrated that neutron stars may act as effective dark matter detectors. Professor Bell is a Fellow of the American Physical Society and has served as President of the Australian Institute of Physics. In 2020, she was awarded the Academy's Nancy Millis Medal.

New windows on the invisible universe: Dark matter and neutrinos

Dark Matter and neutrinos are the most abundant, hardest to detect and least understood forms of matter in the Universe. Dark matter alone comprises more than 80% of all matter, yet its true nature remains a mystery. Neutrinos are elementary particles produced abundantly in nuclear reactions on Earth, in the Sun and throughout the cosmos. Although invisible, both play an essential role in shaping the Universe in which we live. Professor Bell will discuss her work – which combines information from experiments on Earth and astrophysical observations – to reveal the fundamental properties of these particles.



EMERITUS PROFESSOR JOHN LONG FAA
Flinders University

Emeritus Professor John Long is a pre-eminent palaeontologist based at Flinders University, and a leading authority on vertebrate evolution. He has made fundamental discoveries about the early stages of vertebrate evolution, drawing on exceptionally preserved 3D fish fossils that reveal how early vertebrates first developed limbs, digits, lungs and complex reproductive behaviours. His fieldwork in Australia, Antarctica, Africa, Iran and East Asia enabled description of 90 new fossil taxa including new kinds of ancient fishes, the discovery of world's oldest reptile tracks and Australia's oldest theropod dinosaur. In addition to publishing high-profile research and authoring major textbooks, he also promotes public understanding of science through his numerous popular science books.

In search of the origins of the human body plan

Spectacular new fossil discoveries from Australia, China and Canada show that about 90% of the vertebrate body plan required for human evolution occurred in Silurian-Devonian age fishes (443–359 million years ago). Perfect 3D fossils from the Gogo Formation in Western Australia, when analysed using synchrotron and neutron beam facilities, reveal embryos, brain endocasts and the oldest known 3D soft tissues and organs. This resolves the origins of most of our major organ systems: the formation of complex skulls and brain; jaw bones with true teeth; inner ear with three semicircular canals; ossified backbones, hip and shoulder girdles; paired limbs similar to ours with digit bones inside pectoral fins; external genital organs; multichambered thoracic-placed heart; and evidence for air-breathing. Ongoing research in Professor Long's lab focuses on further refinement in early skull, brain and limb evolution over the fish-tetrapod transition, and the nature of the earliest jaws and teeth.

AUSTRALIAN ACADEMY OF SCIENCE



PROFESSOR NICKI PACKER FAA

Macquarie University

Professor Nicki Packer is a world leader in glycomics, the study of glycans (carbohydrates and sugars). She has helped transform glycoscience from an unrecognised niche research area into a high-impact international specialty field that has applications across medicine and agriculture. Her research has linked glycomics, transcriptomics, proteomics and bioinformatics to reveal fundamental facts on the importance of glycoconjugates and given new understanding of infection and disease with resultant drug targets. She is currently Distinguished Professor of Glycoproteomics at Macquarie University. She also helped establish the Australian Proteome Analysis Facility and co-founded the biotechnology company Proteome Systems, developing glycoanalytical technologies used to discover disease biomarkers.

Illuminating the glycome: You cannot see what you do not look for

The 'streetlight effect' in research refers to the tendency to focus on accessible, standard protocols or previously observed data and variables. This potentially neglects important but less readily available aspects of a problem and can lead to incomplete or misleading conclusions. Glycans break the central dogma and can be considered 'biological dark matter' due to the technical difficulty of analysing them. Unlike DNA, RNA or proteins, glycan biosynthesis is not template-driven, producing an extensive diversity of structures that varies between tissues, developmental stages and disease states – often on the same conjugated protein or lipid. Glycoconjugate changes, and their relationship to other molecular components of the cell, tissue and organs, tend not to be discovered due to the use of current analytical approaches. Professor Packer will outline the need to be aware of the assumptions behind standard approaches and to look beyond them.



DR DEBORAH RATHJEN FAA FTSE

Carina Biotech

Dr Deborah Rathjen is an accomplished Australian scientist, innovator, and biotechnology leader with more than 40 years of experience translating cutting-edge research into life-changing medical therapies. A named inventor on patents behind globally successful autoimmune drugs like Humira and Remicade, she has led the development of treatments for cancer, Alzheimer's, post-traumatic stress disorder and depression. Dr Rathjen has raised over \$130 million for Australian startups and guided the nation's first homegrown CAR-T therapy into clinical trials. Her leadership extends across key national science bodies and policy, including shaping Australia's R&D Tax Incentive. She is currently CEO and Managing Director of Carina Biotech, and also serves on national science advisory bodies, including the Medical Research Future Fund Advisory Board.

From discovery to patient impact: The science and architecture of biomedical translation

Biomedical translation is often represented as a linear progression from discovery to therapy. In practice, it is an iterative process requiring the alignment of compelling biology, enabling technologies, intellectual property, capital, clinical development and global partnerships. Dr Rathjen will examine this process through examples spanning immunology, oncology and neuroscience. These include early work on tumour necrosis factor and patents associated with major autoimmune therapies – such as Humira and Remicade – to small-molecule programs targeting cancer and neuropsychiatric disease, and Australia's first homegrown CAR-T therapy to enter clinical trials. These experiences demonstrate that scientific invention, while essential, is rarely sufficient for impact. Successful translation depends on rigorous target validation, fit-for-purpose development strategies, sustained investment and the capacity to navigate scientific, regulatory and commercial uncertainty. Dr Rathjen will also consider how research infrastructure, industry–academic collaboration and public policy can strengthen Australia's ability to convert scientific excellence into globally significant therapies.



PROFESSOR DAVID RAUBENHEIMER FAA

The University of Sydney

Professor David Raubenheimer holds the Leonard P Ullmann Chair in Nutritional Ecology at the University of Sydney's Charles Perkins Centre. A leading expert in nutritional ecology, he has combined theory from ecological, evolutionary, physiological and behavioural sciences with nutrition to produce the conceptual foundations for the field. He co-invented nutritional geometry, a modelling framework, for implementing this synthesis and applied it to produce important new insights that have had transformational impacts on several fields – including gerontology, primatology, ecology and human nutrition. His specific discoveries include new understanding of the relationship between diet and ageing and of the causes of human obesity, a new approach for designing animal feeds, and important contributions to primatology and ecology.

Appetites, insects, apes and obesity

Imbalanced nutrition is now a leading cause of preventable death worldwide, making it more important than ever to understand why we select poor diets and how this might be addressed. Professor Raubenheimer's research has taken a broadly interdisciplinary approach to this problem: examining how other species select balanced diets and identifying similarities and differences with humans. He will present a brief overview of this research program, spanning experimental studies of insects in the lab, observational studies of primates in the wild, and experimental and observational studies of humans in industrialised food environments. Together, these studies show that humans share key aspects of nutritional regulation with other species – and how unique industrialised food environments have changed in ways incompatible with these evolved mechanisms.



PROFESSOR TIM SCHMIDT FAA

UNSW Sydney

Professor Tim Schmidt is currently Head of the School of Chemistry at UNSW Sydney. A physical chemist, his work spans solar energy and astrochemistry. He achieved world-record photochemical upconversion efficiencies and was the first to apply this process to solar cells, advancing prospects for next-generation renewable energy. His research has also transformed understanding of molecules in space, particularly the fundamental C_2 molecule, and illuminated the behaviour of highly reactive species through pioneering gas-phase spectroscopy. These discoveries have reshaped knowledge of molecular structure and reactivity across chemistry and physics. His international impact has been recognised through major honours, including the Coblentz Award (2010) and the Broida Prize (2015).

The alchemy of light: From interstellar space to the future of solar energy

Molecules are an omnipresent constituent of matter, and understanding their behaviour upon absorbing light has profound consequences for both fundamental science and technology. Light is the primary language through which molecules communicate with us. It is our sole window into the chemistry of deep space, allowing us to decipher the molecular makeup and chemical evolution of the cosmos beyond our solar system. On Earth, the molecular absorption of light sustains life through photosynthesis, and learning to mimic – and master – this process is vital for the future of clean energy. In this talk, Professor Schmidt will discuss how his team uses lasers to uncover the secrets of interstellar chemistry, including the enigmatic behaviour of comets. He will also explore how it's possible to manipulate molecular energy states post-absorption to break traditional efficiency barriers and maximise the potential of next-generation solar energy production.

AUSTRALIAN ACADEMY OF SCIENCE



PROFESSOR YONG-GUAN ZHU FAA

Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences

Professor Yong-Guan Zhu specialises in soil. He is currently the Director-General of the Research Center for Eco-Environmental Sciences at the Chinese Academy of Sciences. Professor Zhu is a leader in interdisciplinary approaches to soil problems and has made fundamental discoveries in understanding the dynamics of contaminants, nutrients and antimicrobial resistance in the soil–plant–microbe nexus. His focus is on mechanisms of contaminant pathways from soil to crop plants (e.g. arsenic in rice) and the environmental dissemination of antimicrobial resistance. Professor Zhu has developed groundbreaking solutions to mitigate threats to soil-related quality of life, and has established extensive collaborative networks with China, Australia and the developing world. He is a Fellow of The World Academy of Sciences.

Antimicrobial resistance in One Health

Antimicrobial resistance (AMR) occurs when bacteria, viruses, fungi and parasites no longer respond to antimicrobial medicines. In this presentation, Professor Zhu will explore AMR connectivity across entire ecosystems under a One Health framework. Both urban wastewater treatment plants and intensive animal farms are major sources of AMR pollution in the environment. Once in the environment, AMR can spread through microbial mass movement and be transported through various pathways at local, regional and global scales. The soil-plant system is considered a ‘bridge’ between the environment and people, acting as a major pathway for human exposure to environmental AMR. DNA-based technologies will likely overestimate the risks of AMR. Instead, Professor Zhu highlights the application of single-cell methodologies for *in situ* analysis of active AMR. Targeted single-cell sorting and metagenomics make it possible to pinpoint the most active antibiotic-resistant bacteria, and to track and decipher the evolution of resistance under multiple environmental stresses.



PROFESSOR HUANTING WANG FAA FTSE

Monash University

Professor Huanting Wang is Sir John Monash Distinguished Professor and an ARC Australian Laureate Fellow. He is a renowned scientist at the intersection of materials science and chemical engineering, with a focus on developing nanostructured membranes and materials for a wide range of industrial separation processes. His pioneering research has driven major advances in the separation and purification of substances through the design of novel membranes. His work has led to the creation of functional membranes capable of selectively filtering ions for mineral extraction. He has also developed innovative materials and architectures that enhance the energy efficiency and environmental sustainability of separation processes, such as water desalination and purification.

Membranes and nanomaterials for sustainable separation technologies

In this presentation, Professor Wang will highlight his work advancing the fundamental understanding and engineering of membranes and separation processes for sustainable lithium extraction, water purification and treatment, and solvent separation. He will discuss bioinspired ion transport and separation mechanisms in metal–organic frameworks that enable the design of ion-selective membranes. He will also cover the structural engineering of functional materials into advanced membranes for targeted separation applications, and the development of smart functional materials for solar-driven separation processes.

AUSTRALIAN ACADEMY OF SCIENCE



MS SALLY WILLIAMS FAA FTSE
Australian Research Council

Ms Sally Williams is a pivotal figure in Australia's science and technology landscape, distinguished by her career in nurturing nascent startup operations through to building globally competitive, research-driven businesses. She is a key architect of Australia's deep tech ecosystem, translating discovery into major economic and social outcomes. As CEO of Cicada Innovations, she enabled companies to raise over \$6.1 billion. Her foundational work at Google built its Australian R&D team into a global force. Ms Williams has driven systemic changes nationally through her many advisory and policy formation roles, including chairing the Australian Government's Pathway to Diversity in STEM Review. She currently holds several board roles, including Chair of the National Computational Infrastructure.

The science of translation: Engineering Australia's deep tech ecosystem

Australia possesses world-leading academic research capabilities yet historically faces a 'valley of death' in commercialising discoveries. As unprecedented global challenges drive a massive shift towards physical, deep tech solutions, the imperative to translate pure science into scalable, globally competitive businesses has never been more urgent. This presentation explores the 'science of translation' – the systemic architecture required to bridge the gap between lab-bench breakthroughs and tangible economic or social impact. Drawing on foundational work in scaling corporate R&D and nurturing nascent startups into a multi-billion-dollar deep tech ecosystem, this talk examines the critical, hands-on mechanisms of company building. Furthermore, it highlights the essential policy frameworks and diverse talent pipelines necessary to sustain this innovation engine. By embracing commercialisation and ecosystem-building as a vital extension of the scientific process, Australia has an unparalleled opportunity to leverage its research prowess to build resilient economies and forge sustainable futures.



PROFESSOR ALPHA YAP FAA
The University of Queensland

Professor Alpha Yap is a cell biologist and ARC Laureate Fellow at the Institute of Molecular Bioscience, University of Queensland. He is an international leader in the interdisciplinary field of mechanobiology, combining experimental biology and physical theory. Professor Yap pioneered the discovery of how cells use mechanical forces to communicate with one another in health and disease. In particular, he discovered how mechanical cell–cell communication enables transmission of stress signals and keeps tissues in homeostasis. Understanding this adhesion-based mode of communication has implications for cancer, inflammation and new approaches to tissue engineering.

Neighbourhood watch: Preserving epithelial health against the challenge of ordinary life

Epithelia are the principal tissue barriers of the body, whose dysfunction leads to diseases such as cancer and inflammation. Healthy life requires healthy epithelia. They protect the body against everyday environmental challenges that induce cell injury and death – including chemicals, radiation and microbial infection. It is almost staggering to consider how epithelial tissue cope with these diverse stresses. Professor Yap and his team have found that epithelia achieve this through a system of active surveillance mechanisms that detect, and respond to, mechanical and chemical signatures of cell stress and injury. Critically, these are coordinated in space and time to ensure proportionality by the molecular junctions that couple epithelial cells into tissue barriers. Conversely, these responses can become aberrant to contribute to disease when cell–cell junctions are disrupted.

AUSTRALIAN ACADEMY OF SCIENCE



PROFESSOR DEREK LEINWEBER FAA

Adelaide University (Elected 2025)

Professor Derek Leinweber is a theoretical physicist at the University of Adelaide, renowned for his work unravelling the structure of quantum chromodynamics (QCD), the theory describing the strong force that binds quarks into matter. Performing direct first-principles supercomputer simulations, he revealed the structure of the QCD ground state fields forming the foundation of matter. He illustrated how the fundamental mechanism of centre vortices in the fields confine quarks and generate mass. Professor Leinweber's *ab initio* calculations of the electromagnetic structure of nucleon and Lambda-baryon excitations lead the field, advancing theoretical techniques. Combining these breakthroughs with novel developments of nonperturbative effective field theory, he has revolutionised understanding of QCD.



PROFESSOR GORDON SMYTH FAA

Walter and Eliza Hall Institute of Medical Research (WEHI) (Elected 2021)

Professor Gordon Smyth is a Laboratory Head at the Walter and Eliza Hall Institute of Medical Research (WEHI) and Professorial Fellow in the School of Mathematics and Statistics at the University of Melbourne. A statistician and bioinformatician, he is known for his work on statistical computing and statistical modelling – particularly nonlinear estimation, dispersion estimation and algorithm development. He has made influential contributions to the analysis of genomic data, especially to linear modelling and empirical Bayes methods for the analysis of gene expression experiments. Together with collaborators, he has used genomic data to make important discoveries of relevance to breast cancer, malaria and other diseases. In 2024, he was awarded the Eureka Prize for Excellence in Research Software for the development of limma, the world's most downloaded R software package for statistical bioinformatics.

ABSENT NEW FELLOWS

Also elected in 2026, but unable to join us are:

PROFESSOR PHILIP BOYD FAA FRs

PROFESSOR ANDREW DZURAK FAA

PROFESSOR SHERENE LOI FAA FAHMS

PROFESSOR AJAY SOOD FAA FRs

(Corresponding Member)



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RUBY PAYNE-SCOTT MEDAL AND LECTURE

The Ruby Payne-Scott Medal and Lecture recognises women researchers of the highest standing in the physical or biological sciences. It honours Ruby Payne-Scott's pioneering contribution to radiophysics and radio astronomy.



PROFESSOR ZAIPING GUO FAA FTSE

Adelaide University

Professor Zaiping Guo is a Chair Professor at the City University of Hong Kong, having joined the university in July 2025. Prior to this, she served as an Australian Laureate Fellow in the School of Chemical Engineering at the University of Adelaide. Her research specialises in the design and application of electrode materials and electrolytes for energy storage and conversion, encompassing rechargeable batteries, hydrogen storage and fuel cells. Professor Guo's contributions have been recognised with numerous awards, including an ARC Queen Elizabeth II Fellowship (2010), an ARC Future Fellowship (2015) and an ARC Laureate Fellowship (2021). She also received the 2020 NSW Premier's Prize for Science & Engineering in the category of Excellence in Engineering or Information and Communications Technology. In 2023, she was elected a Fellow of both the Australian Academy of Science and the Australian Academy of Technological Sciences and Engineering.

Battery innovation for a circular future

The global transition to renewable energy and widespread electrification is driving unprecedented demand for advanced batteries for electric vehicles, portable electronics and grid-scale energy storage. Meeting these needs requires batteries with high energy density, great safety, long lifetime, low cost and reduced environmental impact. Such features can be supported by innovations in materials, electrochemistry, cell design and resource sustainability. Professor Guo will present recent advances in next-generation battery technologies, including lithium metal batteries, aqueous batteries and battery recycling. She will highlight strategies to stabilise lithium metal anodes through interfacial and electrolyte engineering, improve cathode reversibility, develop safe and sustainable aqueous battery chemistries for large-scale energy storage, and recover critical materials from spent batteries to enable a circular battery economy. These advances demonstrate how fundamental materials innovation and electrochemical engineering can accelerate the development of high-performance, sustainable battery technologies for a low-carbon and circular energy future.

MACFARLANE BURNET MEDAL AND LECTURE

The Macfarlane Burnet Medal and Lecture recognises scientific research of the highest standing in the biological sciences. It is a premier honorific award that commemorates the contributions to science by Professor Sir Frank Macfarlane Burnet OM AK KBE FAA FRS NOBEL LAUREATE.



PROFESSOR ALAN COWMAN AC FAA FAHMS FRS

Walter and Eliza Hall Institute of Medical Research (WEHI)

Over the last 30 years, Professor Alan Cowman has studied *Plasmodium falciparum*, the causative agent of the most severe form of malaria in humans. At his WEHI laboratory, his team seeks to understand malaria biology, specifically the function of proteins involved in the parasite's pathogenesis, and to use this new knowledge to identify drug and vaccine targets. His lab's advances include developing research tools for genetic modification used worldwide, defining the parasite's mechanisms to invade and modify human red blood cells, and identifying the molecular mechanism of resistance to commonly used antimalarial drugs. Professor Cowman's fundamental discoveries have directly led to the development of novel therapeutic candidates including live genetically weakened vaccines and new antimalarial compounds.

Discovery of novel antimalarials and their use as chemical tools to decipher new biology of the parasite: A pharma-academia collaboration

Artemisinin combination therapies (ACTs) are the main treatment option for malaria, caused by the intracellular parasite *Plasmodium* spp. However, increased resistance to ACTs highlights the importance of finding new drugs with novel modes of action. The aspartic proteases Plasmeprin IX and X (PMIX and PMX) are promising drug targets. Professor Cowman's team built a drug discovery program with the pharmaceutical company Merck to develop dual inhibitors of PMIX and PMX. Using these chemical tools, they have shown that PMX and PMIX are master modulators for *P. falciparum* invasion of human erythrocytes and for maturation of proteins required for parasite development and egress from the host cell. These compounds show efficacy against all *Plasmodium* spp. Dual-PMIX and PMX inhibitors are promising candidates for malaria treatment and as a long-acting injectable. First-in-human clinical trials of the clinical candidate (MK-7602) are ongoing.



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ACADEMY AWARDS 2026

CAREER HONORIFIC AWARDS 2026

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SUZANNE CORY MEDAL

The Suzanne Cory Medal recognises outstanding research in biological sciences, alternating each year between biomedical sciences and non-biomedical biological sciences. It is open to any biological science researcher regardless of time since their major degree. It honours the contributions made to science – particular in understanding the genetic causes of cancer – by molecular biologist Professor Suzanne Cory AC FAA FRS. In 2026, the Suzanne Cory Medal recognises outstanding research in the biomedical sciences.



PROFESSOR HALA ZREIQAT AM FAA FTSE FAHMS

The University of Sydney

Professor Hala Zreiqat is a Payne-Scott Professor of Biomedical Engineering at the University of Sydney and an internationally recognised leader in biomaterials and regenerative medicine. Her research engineers advanced synthetic biomaterials and 3D-printed scaffolds for bone and tissue regeneration, with several technologies progressing toward clinical translation in orthopaedics and dental reconstruction. A Member of the Order of Australia and former Fulbright Scholar at MIT and Harvard Radcliffe Fellow, she is a Fellow of the Australian Academies of Science, Health and Medical Sciences, and Technology and Engineering. Her honours include the Eureka Prize for Innovative Use of Technology, the TAKREEM Award and the 2018 NSW Premier's Woman of the Year. She founded BIOTech Futures, a global initiative mentoring young people into science and engineering.

Engineering regeneration: Personalised biomaterials for musculoskeletal repair and healthy ageing

The growing clinical need to repair critical-sized bone defects and restore tissue function is driven by an ageing population with reduced healing capacity. A major limitation of current regenerative approaches is the persistence of hostile, senescence-associated microenvironments that compromise stem cell function and therapeutic outcomes. Professor Zreiqat will describe her team's integrated engineering approach to overcoming these challenges. This includes a platform of patented bioceramic scaffolds for the cell-free, personalised treatment of load-bearing bone defects, engineered to provide mechanical competence, bioactivity and antibacterial functionality while enabling patient-specific control of scaffold architecture. She will discuss emerging strategies to address cellular senescence as a critical barrier to regeneration, including biomaterial-driven modulation of cell behaviour and targeted approaches to enhance stem cell resilience within hostile microenvironments. Finally, she will highlight how these combined strategies open new avenues for musculoskeletal and soft tissue regeneration, with strong translational potential for orthopaedic and broader clinical applications.

MAWSON MEDAL AND LECTURE

The Mawson Medal and Lecture recognises research in the Earth sciences and honours the contribution to science in Australia by Sir Douglas Mawson OBE FAA FRS, geologist and Antarctic explorer.



PROFESSOR NEIL SAINTILAN

Macquarie University

Professor Neil Saintilan is an Earth scientist whose research has explored the impact of climate change across different types of wetlands – from coastal wetlands impacted by sea level rise to freshwater wetlands subject to the dual stressors of altered climatic conditions and water extraction. His team has identified new approaches to wetland management, drawing attention to the benefits of carbon sequestration ('blue carbon') in coastal wetlands, and pioneering tools to help river managers better accommodate the needs of wetlands when planning water allocations. He is currently Director of Research in the School of Natural Sciences at Macquarie University and has held senior scientific roles in the NSW Government and at CSIRO.

Wetlands on the front line of climate change

Wetlands are the most valuable of all natural habitats in their contribution to biodiversity, human nutrition and sanitation. Some of the earliest demonstrated impacts of climate change have occurred in wetland environments, following changes in temperature, rainfall and sea level. The capacity of natural wetland systems to respond to these pressures by capturing and storing carbon has led to a paradigm shift in management. Protecting and restoring wetlands is now an important component of our response to the climate crisis.

DAVID CRAIG MEDAL

The David Craig Medal is awarded in honour of the outstanding contribution to chemical research of Emeritus Professor David Craig AO FAA FRS. It recognises contributions of a high order to any branch of chemistry by active researchers. The recipient of this medal delivers several public lectures across Australia.



PROFESSOR PHILIP GALE

University of Technology Sydney

Professor Phil Gale specialises in supramolecular chemistry, focusing on the design and synthesis of small molecules that facilitate transport of anions through membranes. This work has implications for treating disease by modulating cellular ionic gradients and for developing new antimicrobial and anticancer compounds – including transmembrane transporters shown to trigger cancer cell death. Professor Gale was educated at the University of Oxford before holding a Fulbright Fellowship at the University of Texas at Austin. He has held professorial and leadership roles in the UK and Australia, most recently at the University of Technology Sydney, before joining the University of Groningen in 2026. Professor Gale has received several honours, including the Izatt–Christensen Award (2018). He is a Fellow of the European Academy of Sciences.

Anion binding and transport: In models and in cells

The facilitated transport of anions across lipid bilayers by small molecules is an area of significant current interest, driven by potential applications in the treatment of diseases such as cancer and cystic fibrosis. This has included the development of synthetic ion channels and discrete carriers capable of mediating controlled transmembrane anion flux. Professor Gale will outline work on the design and synthesis of discrete anion transporters, with emphasis on the relationship between molecular structure and transport activity. He will describe the development of assays to elucidate transport mechanisms in model membrane systems, and examine the behaviour of these systems in cellular environments. These studies demonstrate how synthetic transporters can modulate ion homeostasis, highlighting their promise as functional tools in supramolecular chemistry, chemical biology and medicine.

ACADEMY AWARDS 2026

MID-CAREER HONORIFIC AWARDS 2026

Mid-career awards recognise outstanding contributions to the advancement of science by researchers between eight and 15 years post-PhD in the calendar year of nomination.

GUSTAV NOSSAL MEDAL

The Gustav Nossal Medal for Global Health honours the contributions made to fields of cellular immunology, antibody formation and tolerance, and vaccine research science by Professor Sir Gustav Nossal AC CBE FAA FTSE FRS. The award recognises research of the highest standing in the field of global health.



PROFESSOR SANT-RAYN PASRICHA

Walter and Eliza Hall Institute of Medical Research (WEHI)

Professor Sant-Rayn Pasricha is Head of the Melbourne School of Population and Global Health at the University of Melbourne and leads a laboratory at WEHI and the WHO Collaborating Centre for Anaemia Detection and Control. He is a haematologist, holds a PhD in epidemiology, and completed postdoctoral training at the Weatherall Institute of Molecular Medicine at the University of Oxford. He combines these skills to lead a comprehensive research program spanning experimental biology through to global health trials, addressing maternal and child undernutrition. His work has influenced WHO iron intervention policies for every woman and child in a low-income country and directly informed WHO criteria for diagnosis of anaemia for every person worldwide. His investigator-initiated trials have recruited more than 8,000 women and children in Malawi and Bangladesh.

Controlling anaemia in low-income countries: From discovery to policy

Anaemia affects more than 1.7 billion people worldwide and remains one of the most pervasive, under-recognised barriers to maternal health, child development and human potential. In this presentation, Professor Pasricha will describe a program of work that connects biological insight, clinical trials and global policy to address this challenge. Using examples from studies in Malawi and Bangladesh, he will show how careful evidence generation can overturn assumptions, define who benefits from iron interventions, and identify scalable solutions for women and children in low-resource settings. The presentation will focus on three linked contributions: defining the risks and benefits of iron interventions in infants, evaluating intravenous iron as a new approach to anaemia in pregnancy, and improving global diagnostic thresholds for anaemia. It will conclude by reflecting on how science can move from discovery to policy and impact at global scale.

NANCY MILLIS MEDAL

The Nancy Millis Medal honours the contributions made to science by Professor Nancy Millis AC MBE FAA FTSE and recognises her importance as a role model for women aspiring to be research leaders. The award recognises outstanding research and leadership by women in any branch of the physical and biological sciences.



PROFESSOR SARAH-JANE DAWSON FAHMS

Peter MacCallum Cancer Centre

Professor Sarah-Jane Dawson is a physician-scientist at the Peter MacCallum Cancer Centre and the Deputy Director of the Collaborative Centre for Genomic Cancer Medicine at the University of Melbourne. She is a world leading authority in genomics and biomarker research. After training as a medical oncologist, she was awarded a prestigious Commonwealth Scholarship to complete her PhD at the University of Cambridge, UK. As a postdoctoral fellow, she helped pioneer the development of non-invasive blood-based biomarkers ('liquid biopsies'). Since returning to Melbourne in 2014, she leads a research program focused on the development and clinical application of circulating tumour DNA (ctDNA) analysis for early detection, risk stratification and disease monitoring. She is a fellow of the Australian Academy of Health and Medical Sciences and has been awarded several prestigious prizes.

Circulating tumour DNA to facilitate precision cancer medicine

Cell-free circulating tumour DNA (ctDNA) has proven to be an important biomarker for monitoring adaptive changes to cancer therapies. Genome-wide analysis of ctDNA can provide an unprecedented insight into molecular changes of the tumour that occur during the development of disease and in response to cancer therapies. To date, the use of ctDNA to monitor the tumour landscape has largely been limited to tracking genomic evolution. However, it is now clear that cancers can also adapt to therapeutic pressure by significantly altering their transcriptome. Currently we have a limited understanding of how 'non-genomic' transcriptional adaptation leads to clonal dominance or the evasion of cancer therapies. In this presentation, Professor Dawson will provide an overview of new ctDNA approaches that are providing an opportunity to track both genomic evolution and transcriptional changes in real time to improve our understanding of the mechanisms leading to molecular resistance in cancer.



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ACADEMY AWARDS 2026

EARLY-CAREER HONORIFIC AWARDS 2026

Early-career awards recognise outstanding contributions to the advancement of science by researchers no more than 10 years post-PhD in the calendar year of nomination.

ANTON HALES MEDAL

The Anton Hales Medal recognises research in the Earth sciences and honours the contributions to the Earth sciences by Professor Anton L. Hales FAA. Professor Hales was the founding director of the Research School of Earth Sciences at the Australian National University.



DR MARK HOGGARD
Australian National University

Dr Mark Hoggard is an observational geodynamicist whose research connects surface observations to processes deep within the Earth, spanning mantle convection, dynamic topography and lithosphere structure. He works on problems related to Earth structure, identifying critical mineral resources, forecasting sea level change and distinguishing underground nuclear tests from naturally occurring earthquakes. He joined the Australian National University in 2021 as a DECRA Research Fellow following postdoctoral research positions at Cambridge, Harvard and Columbia universities.

BRIAN ANDERSON MEDAL

The Brian Anderson Medal recognises outstanding contributions by early-career researchers to research in information and communications technology (ICT). It honours the scientific contributions by Professor Brian Anderson AC FAA FTSE FRS to control and systems theory, signal processing and telecommunications.



PROFESSOR LIANG ZHENG
Australian National University

Professor Liang Zheng is a computer vision researcher at the Australian National University and a Research Scientist at Canva. He is the recipient of an ARC DECRA Fellowship and an ARC Future Fellowship. His research focuses on visual generation and perception, specifically democratising image generation model training. Professor Zheng has made pioneering contributions to representation learning – that is, how to best represent images with vectors in complex and changing environments. He and collaborators designed a training data augmentation method that is widely used to improve AI representations and performance across various domains, including crop disease identification, fish classification, surgery robots, speech understanding and general computer vision.

Bitter lesson in image generation

Hand-crafted features – for example, those representing colours, textures and shapes – were popular in 2000s. In 2012, deep learning hit which proved that end-to-end training worked and thus destroyed the belief of hand design. Today, in the era of large generative models, a very successful category – image generation models – surprisingly still use non-end-to-end systems. In this talk, Professor Zheng will challenge this premise and show that the bitter lesson learned in 2012 still applies today.

CHRISTOPHER HEYDE MEDAL

The Christopher Heyde Medal honours the contributions to mathematics by Professor Christopher Charles Heyde AM FAA FASSA. Professor Heyde was the Foundation Dean of the School of Mathematical Sciences at the Australian National University, and Professor Emeritus of Statistics at Columbia University, New York. In 2026 it recognises outstanding achievement in probability theory, statistical methodology and their applications.



DR STEPHEN MUIRHEAD
Monash University

Dr Stephen Muirhead is an ARC Future Fellow in the School of Mathematics at Monash University, working in the fields of stochastic analysis and probability theory. His research interests include random fields and their geometry, random waves and connections to percolation theory (the study of how global connectivity in a material or network arises out of microscopic properties). His work has resolved long-standing conjectures in the physics literature and pioneered a set of new techniques. Dr Muirhead has held positions at the University of Melbourne, Queen Mary University of London, King's College London, and the University of Oxford. He received his PhD from University College London.



DR BELINDA PHIPSON
Walter and Eliza Hall Institute of Medical Research (WEHI)

Dr Belinda Phipson is a statistician working in bioinformatics and medical research. She is currently Laboratory Head in the Bioinformatics Division at WEHI. Dr Phipson's research has leveraged advanced statistical ideas to develop novel methods for the analysis of genomic data. Her lab develops statistical methods and open-source software for data from cutting-edge single cell assays, including transcriptomics, proteomics and spatial technologies. They also undertake collaborative analysis in the fields of cancer and kidney biology. Her methods are freely available and used by researchers worldwide.

DOROTHY HILL MEDAL

The Dorothy Hill Medal honours the contributions of Professor Dorothy Hill AC CBE FAA FRS to Australian Earth science, and her work in opening up tertiary science education to women. It recognises outstanding research in the Earth sciences by women researchers.



DR CAROLINE EAKIN
Australian National University

Dr Caroline Eakin is a seismologist and Senior Lecturer in the Research School of Earth Sciences at the Australian National University. Her research uses field-based seismology to investigate the structure and dynamics of Earth's interior, improving our understanding of plate tectonic processes and the geological evolution of the Australian continent. Much of her research is based on field deployments of broadband seismic arrays, often in remote and challenging environments, that includes the Australian outback, the Peruvian Andes and the Southern Ocean near Macquarie Island. Dr Eakin was awarded an ARC DECRA Fellowship in 2019 and received the 2022 European Geosciences Union Outstanding Early Career Scientist Award in Seismology. She holds a PhD from Yale University, where she was awarded the Elias Loomis Prize.

FENNER MEDAL

The Fenner Medal recognises outstanding contributions to science by Professor Frank Fenner AC CMG MBE FAA FRS. It recognises outstanding research in biology (excluding the biomedical sciences).



DR KAI XUN CHAN

Australian National University

Dr Kai Xun Chan is currently Senior Lecturer at the Research School of Biology and Deputy Director (Research) of the ARC Future Crops Training Centre at the Australian National University. His research dissects how cellular signals coordinate photosynthetic biochemistry and physiological adaptation of plants to challenging environments. Together with collaborators, he has revealed an oxidative stress sensor in chloroplasts, the role of chloroplast signalling in stomatal closure and land plant evolution, and the specialisation of chloroplast signalling in different leaf cells for acclimation to light and heat stress. These findings have significantly advanced fundamental chloroplast biology beyond photosynthesis, providing a novel pathway for engineering future climate-resilient crops.

FREDERICK WHITE MEDAL

The Frederick White Medal honours the contributions to Australian science of Sir Frederick White KBE FAA FRS. It recognises the achievements of scientists in Australia who are engaged in research of intrinsic scientific merit that has made an actual or potential contribution to community interests, to rural or industrial progress, or to the understanding of natural phenomena that have an impact on the lives of people.



DR ADELE MORRISON

Australian National University

Dr Adele Morrison is an ocean and climate scientist whose research explores how the ocean regulates Earth's climate. Her research focuses on the Southern Ocean, using physics knowledge and supercomputers to develop models and make projections of this critically important region. Specifically, she examines how ocean currents and eddies affect the uptake of heat and carbon and influence the melting of Antarctic ice shelves, reducing uncertainty in sea level rise predictions and uncovering the consequences of oceanic changes for the global carbon cycle, and Southern Ocean ecosystems.

GOTTSCHALK MEDAL

The Gottschalk Medal recognises outstanding research in the biomedical sciences and honours the contributions to science of Professor Alfred Gottschalk FAA.



DR DAVID KHOURY

UNSW Sydney

Dr David Khoury is a Scientia Fellow and Group Leader of the Translational Analytics Group at the Kirby Institute, UNSW Sydney. His background is in applied mathematics, where he began his career modelling honey bee colony dynamics, before retraining to model infectious diseases. Dr Khoury has built a research program that integrates mathematical modelling, immunology, virology and clinical medicine to accelerate the development and deployment of vaccines and therapies for infectious diseases. A central theme of his research is the integration of pre-clinical and clinical data to deliver actionable insights. He has pioneered approaches that link laboratory measures of immunity or drug activity with real-world outcomes – enabling regulators, policymakers and industry to make evidence-based decisions, especially in fast-moving public health contexts, such as COVID-19 and mpox.

JOHN BOOKER MEDAL

The John Booker Medal in Engineering Science recognises outstanding research in engineering mechanics that addresses problems in the static and dynamic response of physical systems within engineering and applied mathematics disciplines. It honours the work of Professor John Robert Booker AO FAA.



ASSOCIATE PROFESSOR JIANGUANG FANG

University of Technology Sydney

Associate Professor Jianguang Fang is an ARC Future Fellow in computational mechanics at the University of Technology Sydney. His research focuses on advanced computational modelling and design of materials and structures, with expertise in fracture mechanics, topology optimisation, architected materials and AI-enabled digital engineering. He develops physics-based and data-driven methods to understand and optimise material failure, impact resistance and energy absorption in engineering systems. His work has applications across aerospace, automotive, biomedical and advanced manufacturing industries. Associate Professor Fang is the recipient of the APACM Young Investigator Award. Through his research, he aims to advance safer, smarter and more sustainable engineering systems.

LE FÈVRE MEDAL

The Le Fèvre Medal for research in chemistry commemorates the work of Professor Raymond James Wood Le Fèvre FAA FRS. Its purpose is to recognise outstanding basic research in chemistry.



ASSOCIATE PROFESSOR YU HENG LAU

The University of Sydney

Associate Professor Yu Heng Lau is a research group leader and NHMRC Investigator Fellow in the School of Chemistry at the University of Sydney. Professor Lau completed a PhD in organic chemistry at the University of Cambridge, then moved to Harvard Medical School as a Sir Henry Wellcome Postdoctoral Fellow in synthetic biology. He has developed new chemical methods for peptide cyclisation to target oncogenic protein–protein interactions, and genome-scale engineering methods for the reprogramming of synthetic microorganisms. His current research program spans two main themes: medicinal chemistry against novel telomeric cancer targets and engineering cage-forming proteins as organelles for carbon fixation.



DR KAROLINA MATUSZEK

Monash University

Dr Karolina Matuszek is a Senior Research Fellow in the School of Chemistry at Monash University, where she leads the Thermal Energy Storage Group. She designs novel materials that store renewable energy as heat, an essential technology in a post-fossil energy economy. She pioneered intermediate-temperature phase-change materials and discovered the first ‘trimodal’ storage materials which combine three distinct storage modes to reach a record energy density. She is founder, director and Chief Technology Officer of ThermaLeap, a Monash spin-out commercialising thermal-battery technology. Her work has been recognised with two Royal Society of Chemistry Horizon Prizes. She completed her PhD at the Silesian University of Technology, Poland, before moving to Australia on a Polish National Science Centre Etiuda Fellowship.

PAWSEY MEDAL

The Pawsey Medal honours the contributions to science in Australia by Professor Joseph Pawsey FAA FRS. Its purpose is to recognise outstanding research in physics.



DR CULLAN HOWLETT

The University of Queensland

Dr Cullan Howlett is a Senior Lecturer in astrophysics in the School of Mathematics and Physics at The University of Queensland. His research focuses on mapping the positions and motions of millions of galaxies to understand how our Universe has evolved since the Big Bang. His analysis also sheds light on the mysterious dark matter and dark energy that make up 95% of everything. Dr Howlett has worked on some of the largest galaxy surveys ever undertaken. To analyse the enormous datasets these surveys produce, his team develops cutting-edge computing and statistical tools. These techniques, built to make sense of extraordinarily large and complex data, are increasingly finding uses beyond astronomy.

RUTH STEPHENS GANI MEDAL

The Ruth Stephens Gani Medal honours the contribution to human cytogenetics of Ruth Stephens Gani. It recognises distinguished research in human genetics, including clinical, molecular, population and epidemiological genetics and cytogenetics.



ASSOCIATE PROFESSOR MIGUEL RENTERÍA

QIMR Berghofer

Associate Professor Miguel Rentería is a neurogenomics researcher at QIMR Berghofer Medical Research Institute, where his team's work focuses on understanding the genetic and biological basis of brain disorders, with a particular emphasis on Parkinson's disease and related neurodegenerative conditions. He completed his PhD in human genetics at The University of Queensland and a Master of Public Policy at the University of Oxford. His research integrates genomics, data science and digital health to improve understanding, prediction and treatment of complex brain diseases. Associate Professor Rentería is also an Atlantic Fellow and was named a 2025 Queensland Young Tall Poppy.



DR NICOLE WARRINGTON

The University of Queensland

Dr Nicole Warrington is an NHMRC Emerging Leadership Fellow at The University of Queensland Institute for Molecular Bioscience. With a background in statistical genetics, she seeks to understand the genetic determinants of early life growth and its relationship with cardio-metabolic diseases in later life. She pioneered a new statistical method to partition genetic effects on birth weight into maternal and foetal components. This demonstrated that the relationship between birth weight and adult hypertension is driven by genetic effects, overturning 30 years of research. She is also investigating whether rapid weight growth across early life causally increases risk of cardio-metabolic disease. In doing so, she aims to identify optimal times across the life-course where interventions could reduce the incidence of cardio-metabolic diseases.



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ACADEMY AWARDS 2026

ABORIGINAL AND TORRES STRAIT ISLANDER SCIENTIST AWARD 2026

This award recognises research in the physical and biological sciences, allowing interdisciplinary and sociocultural research that could straddle the social sciences and humanities, by outstanding Aboriginal and Torres Strait Islander PhD students and early- and mid-career scientists. It aims to support research, expansion and growth of research networks, and international knowledge exchange through visits to relevant international centres of research.



MR JACOB BIRCH

The University of Queensland

Mr Jacob Birch is a Gamilaraay man, PhD student at The University of Queensland, social enterprise entrepreneur, and advocate for Indigenous food sovereignty. This ecosystem of work is undertaken to support the development of the native grains industry. In 2024, Mr Birch completed a Churchill Fellowship, travelling through North America learning about Indigenous food sovereignty, looking for pathways that could be adapted to an Australian context. There he witnessed Indigenous peoples driving systemic change and delivering cascading positive impacts across society. Inspired by the Churchill Fellowship, Mr Birch's PhD uses a systems thinking approach to co-design interventions with the Gamilaraay community to support the development of the native grains industry as a model of Indigenous food sovereignty. Mr Birch hopes his work will contribute to theoretical and practical examples of the processes, principles and fundamental elements that will enable a more just, equitable and sustainable food system in Australia.



DR CASSANDRA SEDRAN-PRICE

The University of Sydney

Dr Cas Sedran-Price is a proud Muruwari/Gangugari woman and Senior Research Fellow at the University Centre for Rural Health, University of Sydney. Her interdisciplinary research explores the connections between Country, culture and health, with a focus on Indigenous-led environmental and public health research. An internationally recognised leader in Indigenous data sovereignty and governance, Dr Sedran-Price is the founder and Director of the Collaboratory for Indigenous Data Governance Australia. She co-leads national and international initiatives operationalising Indigenous data sovereignty principles, co-chairs the HEAL Network Indigenous Steering Committee and serves as an executive member of the Global Indigenous Data Alliance. She also contributes to the GBIF Indigenous Data Governance Task Force and the development of the CARE Data Maturity Model – work that collectively advances self-determined and equitable data systems for Indigenous peoples globally.

ACADEMY AWARDS 2026

MAX DAY ENVIRONMENTAL
SCIENCE FELLOWSHIP
AWARD 2026

The Max Day Environmental Science Fellowship Award provides research funding support for PhD students or early-career researchers. The award honours Dr Maxwell Frank Cooper Day AO FAA who spent a lifetime championing entomology, conservation and forestry, as well as helping other scientists.

**DR MENG-HAN JOSEPH CHUNG****University of Canberra**

Dr Joseph Chung is a postdoctoral researcher at the Institute for Applied Ecology, University of Canberra. His research integrates life-history evolution, sexual selection and conservation science to understand how reproductive strategies evolve across species and how this knowledge can support biodiversity recovery. His current work focuses on chytridiomycosis, a devastating fungal disease that has driven the decline or extinction of hundreds of amphibian species worldwide. Using the endangered green and golden bell frog as a model, he is developing and testing strategies to enhance disease resistance, with the goal of improving long-term outcomes for both wild and captive conservation populations.

**MR JULES FARQUHAR****Monash University**

Mr Jules Farquhar is an ecologist, herpetologist and PhD candidate at Monash University, where he studies Australian reptiles with a focus on ecology, conservation, taxonomy and invasion biology. He works as a Senior Research Officer in the Chapple Lab and is also a Research Associate at Museums Victoria. His research integrates field ecology, species distribution modelling, behaviour, ecophysiology and genomics to better understand reptile diversity and inform conservation management. Mr Farquhar's PhD investigates the invasion biology of the six-toothed rainbow skink (*Carlia sexdentata*) in Darwin, examining its origin, spread, ecological impacts and potential management implications. More broadly, his work aims to generate practical conservation outcomes for poorly known and threatened Australian lizards and snakes.

2026 HIGHLY COMMENDED APPLICANTS

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The University of Queensland

MR LUKE FLORENCE

La Trobe University

DR WEI WEI

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Recipients receive a medallion, prize money of A\$50,000 or A\$250,000, national recognition and exposure to new opportunities and networks.

Nominations for 2027 will open soon.

The Prizes are funded through the Australian Government's *Inspiring Australia – Science Engagement Program*.

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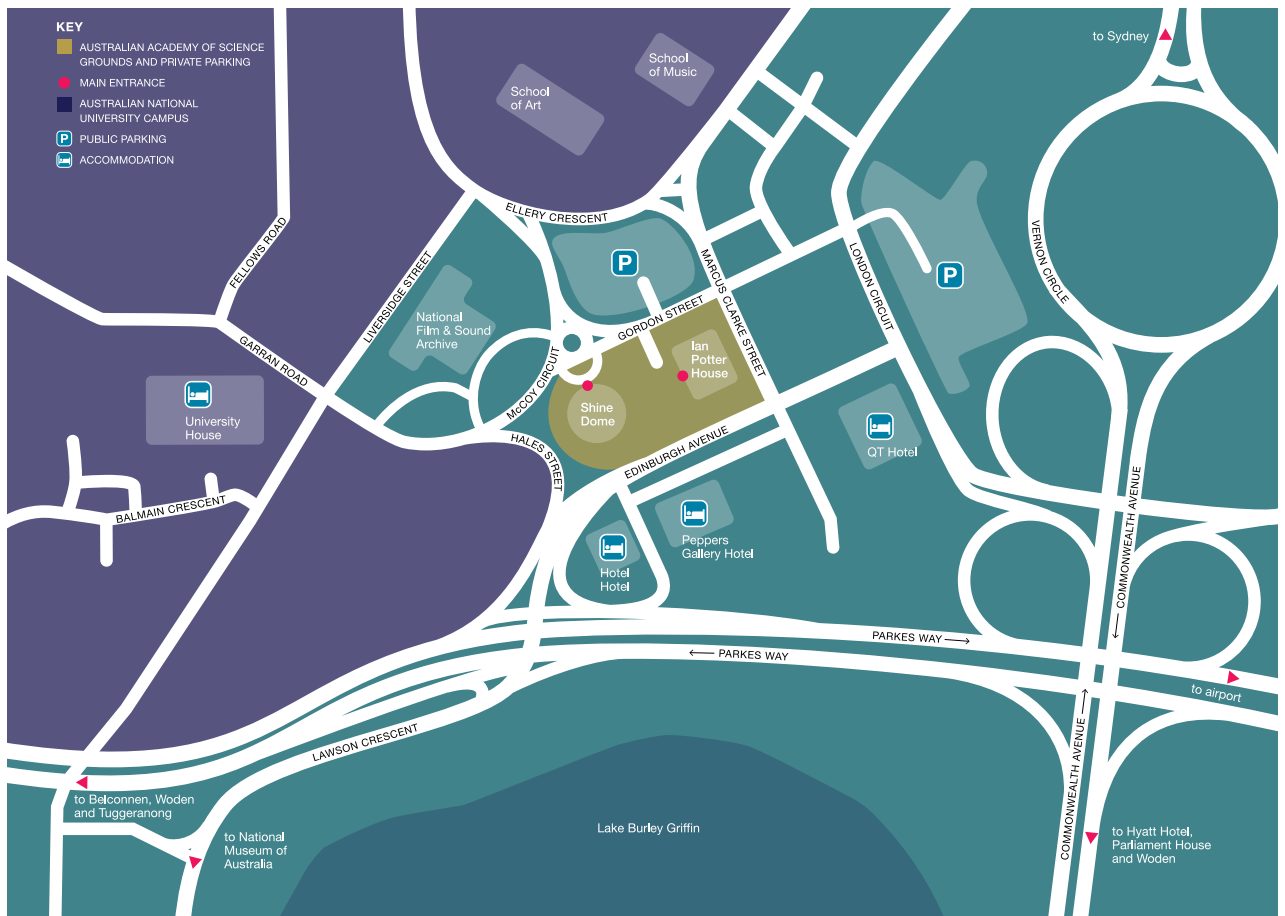
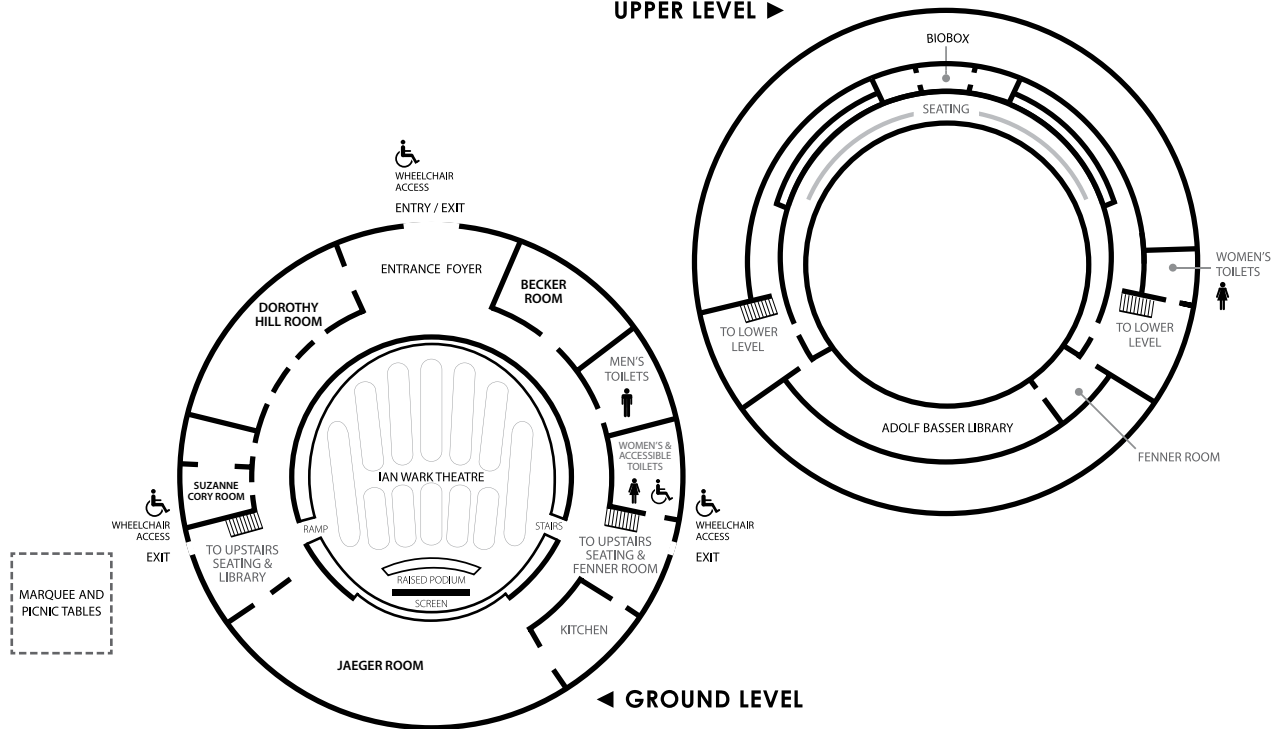
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EVENT INFORMATION

CODE OF CONDUCT

By registering for and attending any Science at the Shine Dome 2026 function, in-person or online, attendees agree to adhere to the Australian Academy of Science's Participant Code of Conduct. The code is available at science.org.au/code-conduct.

INFORMATION DESK

An information desk in the main foyer of the Shine Dome will be staffed during event house each day of the event. For any assistance or event queries, please see Academy staff at this information desk.

LANYARD COLOURS

Colour coding in the program matches the lanyards worn by attendees.

 Fellows  New Fellows  Awardees
 EMCRs  Guests (blue or white)  Event Partners

GROUP PHOTOS

Group photos will be taken at the following times.
Please meet in the main foyer at your designated time.

Tuesday lunch:

Asia-Pacific Academic Mentoring
Programme participants

Tuesday afternoon tea:

Fellows elected in 2026

Thursday morning tea:

Awardees from 2026

LUGGAGE

Academy staff at the information desk can store luggage onsite. Please note that luggage is stored at your own risk.

PARKING

Limited free car parking is available in the Academy's Gordon Street carpark, accessible via 9 Gordon Street, Acton ACT 2601. Bicycle parking is available at the venue. Additional pay parking areas are available within short walking distances to the Shine Dome. The forecourt area of the Shine Dome is set down only.

PUBLIC TRANSPORT

The Shine Dome is a short walk from public transport stops. More information on public transport options can be found at www.transport.act.gov.au.

TAXIS

Academy staff at the information desk can book taxis for attendees as required.

COACH TO AIRPORT

Coaches to the airport from the Shine Dome will be provided at 3.30pm on Thursday 17 September. There is no charge, and no bookings are required. Please be at the main entrance of the Shine Dome with your luggage at 3.25pm.

ACCESSIBILITY

Two accessible parking spaces are available within the Academy car park. The ground floor of the Ian Wark Theatre, as well as the Jaeger Room, Dorothy Hill Room and amenities are all wheelchair accessible. Due to the heritage nature of the building, however, doorways into the venue are only equipped for access by standard wheelchairs.

HEARING ASSISTANCE

The Ian Wark Theatre, both upstairs and downstairs, is equipped with an Infrared Hearing Loop. See Academy staff at the information desk to obtain a receiver and required attachments.

MOBILE PHONES

Attendees are asked to respect speakers and other guests by switching phones to silent while events are in session. However, attendees are encouraged to engage with the Academy on social media, using the hashtag #ShineDome26.

QUIET ROOM

The Suzanne Cory Room in the Shine Dome is available for those who require a quiet space.

CHILDREN AND PARENTS

We welcome children at all Science at the Shine Dome events. Children must be accompanied by a parent, guardian or responsible adult at all times. A quiet room is available for breastfeeding, expressing, changing, feeding or settling children. Please see Academy staff at the information desk for assistance.

FIRST AID

For any emergency or medical assistance, please notify staff at the information desk in the main foyer. A number of Academy staff are first aid qualified, and can assist if required.

WI-FI

Complimentary wi-fi 'Academy-Guest' can be accessed throughout the venue. No password is required. If your device is an Apple MacBook, it may not be able to join a public wi-fi network, in which case please use 'Academy-Function' with password '**Function2026**'.

EVENT LIVESTREAM

The Science at the Shine Dome livestream covers all ceremonies, lectures and presentations in the Ian Wark Theatre. Those travelling to or from the event, and those unable to attend in person, are invited to tune in to this livestream. The livestream is available via the QR code.



ACADEMY STAFF CONTACTS

General event enquiries

Event Manager: 02 6201 9488

Media enquiries

Academy Media: 02 6201 9444

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