



Australian  
Academy of  
Science

# INTERNATIONAL SCIENTIFIC COLLABORATIONS IN A CONTESTED WORLD PROGRAM

Tuesday 14 November 2023



# MESSAGE FROM THE PRESIDENT

The last major Australian invention that did not involve international input was the stump-jump plough. That was 1876. Australia has enjoyed long and sustained scientific collaborations with almost every country of the world. Australia is not alone—the proportion of all papers worldwide with one or more international co-authors continues to increase and we continue to rely on robust multilateralism and active international science diplomacy.

But the world of science and its role in foreign affairs has changed dramatically in the past 20 years. The rise of Asia, efforts to empower the Global South, digitalisation, and the occurrence of worldwide crises all mean that the conditions scientists operate in are vastly different today. The shifts in the way we engage with the international scientific community mean we need to think carefully about how, as a nation, we continue to access knowledge generated in other parts of the world and innovate for our national interest.

These are issues central to our wellbeing, prosperity, and safety. That is why, as a national academy whose interest is to advance science for the national interest, it is incumbent on us to lead robust and sometimes uncomfortable discussions that challenge us all. And to think carefully about where Australia's science and technology future is headed—in particular, how it can contribute to global security and prosperity in an increasingly complex world.

This symposium is designed for academics, industry, entrepreneurs, policymakers, defence personnel, government Ministers, parliamentarians, and anyone who has our national interest at heart. I am confident you will find the symposium relevant to your work.

I would like to offer my sincerest thanks to symposium convenors, Professor Frances Separovic AO<sub>FAA</sub> and Professor Steven Chown FAA. Their insights have helped design a timely and rich program with contributions from all sides of this complex debate. Our annual symposium would not be possible without generous contributions from the speakers who share their time and expertise. And without the support of our sponsors and donors, we couldn't gather today.

I wish you well in your deliberations. This is just the beginning of debates and decisions that will impact Australia's security and scientific progress.

I look forward to engaging with you at *International scientific collaborations in a contested world*.

**Professor Chennupati Jagadish AC PresAA FREng FTSE**  
**President, Australian Academy of Science**



# MESSAGE FROM THE CONVENORS

You do not have to look very hard to see that we are living in a complex world of changing geopolitics and shifting tensions—from international conflict, to COVID-19 vaccine nationalism, to competition between the US and China. These geopolitical events are shaping the global scientific endeavour.

Scientific capability is a powerful asset that nations are keen to possess. Scientific discoveries are vital for strong economies and for addressing global societal challenges such as artificial intelligence (AI), climate change, biodiversity loss, pandemics, and food security. The wellbeing of nations and their citizens depends on solutions that only global scientific collaboration can secure.

Australia enjoys the benefits of international collaboration. Sharing ideas and resources with other scientists drives innovation and solutions to local and global challenges, and enables Australia to develop critical sovereign capabilities.

Advanced technology platforms, such as generative AI, quantum computing, and gene editing, offer new ways to generate economic value and solve social problems. However, new knowledge also brings new risks, and dealing with these risks can inadvertently act as a barrier to the way Australian scientists collaborate globally.

Risks to science such as foreign interference, regulation of scientific collaborations, critical technologies, cybersecurity, and intellectual property protection are influencing how researchers collaborate with colleagues across the globe.

In this context, we must ask ourselves:

- Are measures to address national security risks associated with functional research collaboration?
- What implications do AUKUS and the Defence Strategic Review have for international scientific collaboration?

- Can science and technology help solve global challenges with the current constraints on international engagement?
- How do we strike a balance between mitigating national security risks and enabling the benefits of open scientific collaboration?

To explore these questions and more, we have convened today's symposium: *International scientific collaborations in a contested world*.

Our intention is to facilitate a dialogue about how we can address national security concerns while enabling the benefits of open scientific collaboration for Australia and the world. We will hear from experts who will share new data on the impacts of national security on Australia's research collaborations and compare these to measures adopted in other nations.

We look forward to a productive day of discussions.



**Professor Steven Chown** FAA  
Director, Securing Antarctica's  
Environmental Future  
Symposium convener



**Professor Frances Separovic** AO FAA  
Foreign Secretary, Australian  
Academy of Science  
Symposium convener

# EVENT PROGRAM

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## 9.00 am Acknowledgment of Country and welcome

- **Anna-Maria Arabia**, Chief Executive, Australian Academy of Science

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## 9.05 am Outline of symposium objectives

- **Professor Frances Separovic AO FAA**, Foreign Secretary and symposium convener, Australian Academy of Science
- **Professor Steven Chown FAA**, Fellow and symposium convener, Australian Academy of Science

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## 9.10 am Platinum partner address

- **Prerana Mehta**, Director, Strategic Partnerships, CSIRO

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## 9.15 am Keynote address: The benefits to Australia of international scientific collaboration

- **Professor Chennupati Jagadish AC PresAA FEng FTSE**, President, Australian Academy of Science

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## 9.45 am Keynote address: The state of foreign policy in a contested world

- **The Hon Tim Watts MP**, Assistant Minister for Foreign Affairs

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## 10.15 am Keynote address: The dynamic threat environment

- **Nathan Smyth**, Deputy Secretary National Security and Resilience, Department of Home Affairs

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## 10.45 am Morning tea break under the arches

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## 11.15 am Cooperation in a contested world: What implications does the Defence Strategic Review have for international scientific collaboration?

### In conversation

- **The Hon Richard Marles MP**, Deputy Prime Minister and Minister for Defence
- **Professor Tanya Monro AC FAA FTSE**, Australia's Chief Defence Scientist, Department of Defence

### Panel discussion

- **Moderator and contributor: Professor Tanya Monro AC FAA FTSE**, Australia's Chief Defence Scientist, Department of Defence
- **Professor Nerilie Abram**, Research School of Earth Sciences, Australian National University
- **Dr E. William Colglazier**, Editor-in-Chief *Science & Diplomacy*, American Association for the Advancement of Science

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## 12.30 pm Lunch break under the arches

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## 1.25 pm Platinum partner address

- **Professor Joan Leach**, Director, Australian National Centre for Public Awareness of Science (CPAS), The Australian National University

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## 1.30 pm Panel discussion: Are measures to address national security risks associated with research collaboration working? How do we compare to other nations' responses to intensifying geopolitical tension?

- **Moderator and contributor: Associate Professor Courtney Fung**, Department of Security Studies & Criminology, Macquarie University
- **Professor Kathy Belov AO FAA**, Pro-Vice-Chancellor, Global and Research Engagement, University Sydney
- **Dr Diarmuid Cooney-O'Donoghue**, Faculty of Arts, Monash University
- **Professor James Laurenceson**, Director, Australia-China Relations Institute, University of Technology Sydney
- **Professor Sir Peter Mathieson FRCP (London) FRCPE FMedSci FRSE FRSA**, Chair, Task Force on Security Issues in UK Higher Education, and Principal and Vice-Chancellor, University of Edinburgh

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## 2.30 pm Panel discussion: Can science and technology help solve global challenges with the current constraints on international engagement?

- **Moderator and contributor: Professor Steven Chown FAA**, Director, Securing Antarctica's Environmental Future
- **Dr Marcus Doherty**, Co-Founder and Chief Scientific Officer, Quantum Brilliance Pty Ltd
- **Professor Jacqui True FASSA FAHA**, Director, ARC Centre of Excellence for the Elimination of Violence against Women, Monash University
- **Dr Vaughan Turekian**, Executive Director, Policy and Global Affairs Division, National Academy of Sciences (US)

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## 3.30 pm Afternoon tea break under the arches

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## 4.00 pm Wrap up and next steps

- **Professor Frances Separovic AO FAA**, Foreign Secretary and symposium convener, Australian Academy of Science
- **Professor Steven Chown FAA**, Fellow and symposium convener, Australian Academy of Science

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## 4.15 pm Symposium close

- **Professor Chennupati Jagadish AC PresAA FEng FTSE**, President, Australian Academy of Science



# SPEAKERS AND PANELLISTS

## Professor Nerilie Abram

**Professor of Climate Change, Research School of Earth Sciences, Australian National University**



Nerilie Abram is a Professor of Climate Science at the Australian National University. Her research uses Antarctic ice, coral cores and models to study climate variability and change over the last millennium, to improve our understanding of human-caused climate warming and

its impacts. She is a chief investigator for the Centre of Excellence for Climate Extremes, a deputy director of the Australian Centre for Excellence in Antarctic Science, was a coordinating lead author on the IPCC's special report on the Ocean and Cryosphere in a Changing Climate, and is a member of the international Climate Crisis Advisory Group founded by Sir David King. She is also Deputy Director (Partnerships) for the newly funded Centre of Excellence for 21st Century Weather, and chairs the Australian Academy of Science's National Committee for Antarctic Research.

## Anna-Maria Arabia

**Chief Executive, Australian Academy of Science**



Anna-Maria Arabia has more than 20 years' experience in the science sector and is currently leading the Australian Academy of Science, an independent not-for-profit organisation that provides authoritative and influential scientific advice, represents Australia on

key international scientific bodies, builds public awareness and understanding of science, and champions and supports excellence in Australian science. In this role Ms Arabia has led significant reform in global science engagement, in science policy matters, and in improving diversity and inclusion in science. Starting her career as a neuroscientist, Ms Arabia undertook medical research in Australia and abroad, before applying her skills to policy development both in the Australian public service and in politics, providing policy advice across many social and economic portfolios. She has held several senior executive positions in the science sector as CEO of

Science and Technology Australia and Deputy Director at Questacon – the National Science and Technology Centre. In these roles, Ms Arabia has worked extensively with parliamentarians, the business and community sectors, and the media. She is a strategic advocate for science, social justice, and diversity and inclusion.

## Professor Kathy Belov AO FAA

**Pro-Vice-Chancellor, Global and Research Engagement, The University Sydney**



As Pro-Vice-Chancellor (Global and Research Engagement), Professor Kathy Belov has responsibility for pivotal areas of The University of Sydney's research portfolio related to academic research partnerships, centres, and institutes. She leads the Office of Global Engagement,

oversees the University's multidisciplinary initiatives and stewards relations and agreements with the University's affiliated research institutes. She also focuses on developing the University's national and international partnerships to address the UN Sustainable Development Goals. Professor Belov is one of Australia's leading geneticists and leads a team of researchers using immunogenetics to study immunity and health in Australia's native wildlife, including Tasmanian devils, koalas, wallabies, platypus, and other species.

## Professor Steven Chown FAA

**Fellow and symposium convenor, Australian Academy of Science**

**Director, Securing Antarctica's Environmental Future, Monash University**



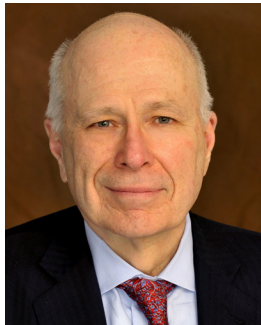
Steven L. Chown is Professor of Biological Sciences at Monash University and director of Securing Antarctica's Environmental Future, an Australian Research Council Special Research Initiative. His research concerns biodiversity variation through space and

time, the conservation implications of environmental change—including the means to mitigate it—and the human-environment intersection in natural, agricultural,

and urban settings. He has undertaken research in Australia, the Asia Pacific, Africa, and in the broader Antarctic region where he has more than 30 years of field experience. For many years Professor Chown has represented the international Scientific Committee on Antarctic Research (SCAR)—including as president from 2016 to 2021—at the Antarctic Treaty Consultative Meetings, providing scientific advice on a broad range of environmental and science policy matters. Professor Chown is a Fellow of the Australian Academy of Science and an International Honorary Member of the American Academy of Arts and Sciences. For his science and policy work in the Antarctic he has received the French Republic's Medal of the 30th Anniversary of the Madrid Protocol, the inaugural Tinker-Muse Prize for Science and Policy in Antarctica, and the SCAR Medal for Excellence in Antarctic Research.

### Dr E. William Colglazier

**Editor-in-chief *Science & Diplomacy*, American Association for the Advancement of Science**



Dr E. William Colglazier is editor-in-chief of *Science & Diplomacy* and senior scholar in the Center for Science Diplomacy at the American Association for the Advancement of Science (AAAS). He served as the fourth science and technology adviser to the

Secretary of State from 2011 to 2014. From 1994 to 2011 he was executive officer of the National Academy of Sciences and the National Research Council where he helped to oversee the studies that provide independent, objective scientific advice on domestic and international public policy issues. He received his PhD in theoretical physics from Caltech in 1971. Dr Colglazier is a past chair of the Forum on Physics and Society and the Committee on International Scientific Affairs of the American Physical Society (APS) and is a Fellow of the AAAS and APS. In 2015 he received from the APS the Joseph A. Burton Forum Award and from the Government of Japan the Order of the Rising Sun, Gold Rays with Neck Ribbon. From 2016 to 2018, he served as co-chair of the Ten Member Group appointed by the UN Secretary General to advise on science, technology, and innovation for helping to achieve the Sustainable Development Goals.

### Dr Diarmuid Cooney-O'Donoghue

**Faculty of Arts, Monash University**



Dr Diarmuid Cooney-O'Donoghue completed his PhD in 2023 at Monash University which examined the risks and opportunities of Australian university engagement with China. He previously worked at the University of Melbourne to support the implementation

of the University Foreign Interference Taskforce Guidelines, and in November 2023 is moving to the University of Warwick to work as Manager for Trusted Research. He is an active researcher on global approaches to managing the opportunities and risks of international scientific collaboration.

### Dr Marcus Doherty

**Co-Founder and Chief Scientific Officer, Quantum Brilliance Pty Ltd**



Dr Marcus Doherty CSM is a scientist, educator, entrepreneur, and soldier. As an entrepreneur, he is a co-founder and the chief scientific officer of Quantum Brilliance Pty Ltd—the global company leading the development of quantum microprocessors based on

diamond that will make quantum computing ubiquitous. As a scientist and educator, he is the head of the Diamond Quantum Science and Technology Laboratory at the Australian National University, and is an internationally recognised expert in the physics of defects in semiconductors. As an educator, he is the architect of various graduate courses related to quantum science, technology and industry. As a soldier, he currently serves as a Lieutenant Colonel within the Future Land Warfare Branch of Army Headquarters, where he leads the implementation of Army's Quantum Technology Roadmap.

## Associate Professor Courtney Fung

Department of Security Studies and Criminology,  
Macquarie University



Courtney J. Fung is Associate Professor in the Department of Security Studies and Criminology at Macquarie University. She is concurrently scholar-in-residence at the Asia Society Australia, and a non-resident fellow at both Harvard University's Fairbank Center for Chinese Studies

and the Lowy Institute. Her research focuses on how rising powers address the norms and provisions for global governance and international security, with a primary focus on China. She serves on the advisory board for the National Foundation for Australia-China Relations and also the Fletcher School of Law and Diplomacy at Tufts University.

## Professor Chennupati Jagadish AC PresAA FEng FTSE President, Australian Academy of Science



Professor Chennupati Jagadish is a Distinguished Professor and head of the Semiconductor Optoelectronics and Nanotechnology Group in the Research School of Physics, at the Australian National University. He has published widely in semiconductor

physics, materials science, optoelectronics, and nanotechnology. Professor Jagadish is the editor-in-chief of *Applied Physics Reviews*, editor of two book series, and serves on editorial boards of 19 other journals. He is a fellow of 11 science and engineering academies in Australia, the US, Europe and India, and 14 professional societies. He has received many Australian and international awards, including a UNESCO medal for his contributions to the development of nanoscience and nanotechnologies, and has been an Australian Research Council (ARC) Federation Fellow and an ARC Laureate Fellow. He became President of the Academy in May 2022.

## The Hon Richard Marles MP

Deputy Prime Minister and Minister for Defence



The Hon Richard Marles MP is the Deputy Prime Minister of Australia, Minister for Defence, and the Federal Member for Corio. His previous ministerial appointments include Minister of Trade, Parliamentary Secretary for Foreign Affairs, Parliamentary Secretary for Pacific Island Affairs,

Parliamentary Secretary for Innovation and Industry, and Chair of the House of Representatives Standing Committee on Aboriginal and Torres Strait Island Affairs.

## Professor Sir Peter Mathieson FRCP (London) FRCPE FMedSci FRSE FRSA

Chair, Task Force on Security Issues in UK Higher  
Education and Principal and Vice-Chancellor,  
University of Edinburgh



Professor Sir Peter Mathieson assumed the office of Principal and Vice-Chancellor of the University of Edinburgh in February 2018. He was formerly the 15th President and Vice-Chancellor of the University of Hong Kong. Previous posts include: director of studies for clinical

medicine, Christ's College, University of Cambridge; foundation professor of renal medicine, University of Bristol; honorary consultant nephrologist, North Bristol NHS Trust; director of Bristol Health Partners; and dean of the Faculty of Medicine and Dentistry, University of Bristol.

## Professor Tanya Monro AC FAA FTSE

Australia's Chief Defence Scientist, Department of  
Defence



Professor Tanya Monro commenced as Chief Defence Scientist in March 2019. In this role she is head of Defence Science and Technology Group and capability manager for innovation, science and technology within the Australian Department of Defence.

In June 2022, Professor Monro was awarded a Companion of the Order of Australia (AC) Other honours and awards include: Prime Minister's Malcolm McIntosh Prize for



Physical Scientist of the Year, South Australian of the Year, Eureka Prize for Excellence in Interdisciplinary Scientific Research, and ARC Georgina Sweet Laureate Fellowship. Professor Monro obtained her PhD in physics from The University of Sydney, and was awarded a Royal Society University Research Fellowship at the University of Southampton. Her previous roles include Deputy Vice Chancellor Research and Innovation at the University of South Australia and inaugural director of the Institute for Photonics and Advanced Sensing and the ARC Centre of Excellence for Nanoscale BioPhotonics at the University of Adelaide. Professor Monro is a Fellow of the Australian Academy of Science, the Australian Academy of Technology and Engineering, the Optical Society of America, and the Australian Institute of Physics. She also sits on the board of CSIRO.

### Professor James Laurenceson

**Director, Australia-China Relations Institute,  
University of Technology Sydney**



Professor James Laurenceson is director of the Australia-China Relations Institute at the University of Technology Sydney. His academic research has been published in leading scholarly journals including *China Economic Review*, *China Economic Journal*, and *Australian Journal of*

*International Affairs*. Professor Laurenceson also provides regular commentary on contemporary developments in China's economy and the Australia-China economic and broader relationship. His opinion pieces have appeared in *Australian Financial Review*, *The Australian*, *The Sydney Morning Herald*, and *South China Morning Post*, among others.

### Professor Frances Separovic AO FAA

**Foreign Secretary and symposium convener,  
Australian Academy of Science**



Distinguished Professor Emeritus Frances Separovic, Foreign Secretary of the Australian Academy of Science, is a biophysical chemist and deputy director of the Bio21 Institute at the University of Melbourne. Her research area is primarily the structure and dynamics of

molecules in biological membranes, with a focus on peptide antibiotics and toxins. Professor Separovic joined the University of Melbourne in 1996, where she served as

associate dean of the science faculty and became the first woman professor of chemistry (2005) and head of school (2010). She is past-president of the Biophysical Society (US) and vice president of Division I of the International Union of Pure and Applied Chemistry (IUPAC). Professor Separovic's contributions to biophysics and nuclear magnetic resonance (NMR) have been recognised with the 2009 ASB Robertson Medal and 2011 ANZMAG Medal. In 2012 she was elected a Fellow of the Biophysical Society, of the Australian Academy of Science, and of the International Society of Magnetic Resonance. In 2017 she was named an IUPAC Distinguished Woman of Chemistry/ Chemical Engineering, and in 2018 inducted to the Victorian Honour Roll of Women. She was appointed an Officer of the Order of Australia (AO) in 2019.

### Nathan Smyth

**Deputy Secretary National Security and Resilience,  
Department of Home Affairs**



Nathan Smyth was appointed as Deputy Secretary National Security and Resilience on 17 July 2023. He leads the group responsible for domestic and international engagement on national security, while broadening our approach to countering terrorism and foreign

interference, and strengthening our democratic and national resilience. Concurrently, Mr Smyth was appointed as the Commonwealth's Counter-Terrorism Coordinator and National Counter Foreign Interference Coordinator. Before taking up his current position, Mr Smyth served as Deputy Secretary Employment and National Workforce within the Department of Employment and Workplace Relations. In that role, he was responsible for the transformative change to the delivery of employment services, including the new employment services model and the Seasonal Worker Program, which provides nine Pacific Island countries and Timor-Leste access to Australian work opportunities. Mr Smyth has held a range of senior positions across government, including at the Department of Health, the Department of Infrastructure and Regional Development, the Department of Finance, and the Department of Foreign Affairs and Trade. He holds a bachelor's degree in political science from the University of New South Wales and a Master of Business Administration from the University of Sydney and the University of New South Wales.



## Professor Jacqui True FASSA FAIIA

**Professor of International Relations, Director of the ARC Centre of Excellence for the Elimination of Violence Against Women, Monash University**



Jacqui True is Professor of International Relations and director of the ARC Centre of Excellence for the Elimination of Violence against Women. She is a global fellow of the Peace Research Institute, Oslo. Professor True received her PhD from York University, Toronto, Canada, and an

honorary doctorate from Lund University Sweden in 2018. Her research is focused on the political economy of violence against women, the prevention of conflict-related sexual and gender-based violence in Asia Pacific, and the UN Women, Peace and Security agenda. She is the author of over several prize-winning books including *The political economy of violence against women* (Oxford, 2012), *Violence against women: What everyone needs to know* (2020), and with Sara E. Davies, *The Oxford handbook of women, peace and security* (2019) and *Hidden wars: Gendered violence in Asia's civil conflicts* (2024). In 2021 Professor True was named one of the 100 most influential persons in gender policy, an eminent scholar, and Susan B. Northcutt awardee of the International Studies Association of North America, which recognises not only outstanding service and competence in the field, but also exceptional inclusivity and courageous work in advancing women and other minorities in the international studies profession.

## Dr Vaughan Turekian

**Executive Director, Policy and Global Affairs Division, National Academy of Sciences (US)**



Dr Vaughan Turekian is the executive director of the National Academies' Policy and Global Affairs Division. Prior to joining the Academies, Dr Turekian served as the fifth science and technology adviser to the US Secretary of State. In this capacity, he advised the

Secretary of State and other senior State Department officials on international environment, science,

technology, and health matters affecting the foreign policy of the United States. Dr Turekian holds a BS in geology and geophysics and international studies from Yale University and a MS and PhD from the University of Virginia where he focused on the transport and chemistry of atmospheric aerosols in marine environments. Dr Turekian not only brings both technical expertise and more than 15 years of policy experience to the position, but also a decorated track record and steadfast commitment to utilising US capital science and technology innovation to advance long-term sustainability and US diplomacy.

## The Hon Tim Watts MP

**Assistant Minister for Foreign Affairs**



Tim Watts is the Federal Member for Gellibrand and has served as the Assistant Minister for Foreign Affairs in the Albanese Government since 2022. Mr Watts was first elected to the House of Representatives in 2013 and for a decade has served one of the most diverse

electorates in Australia. Before entering Parliament, he worked in the technology sector, as a senior manager at Telstra and a solicitor at Mallesons Stephen Jaques (now King & Wood Mallesons). Mr Watts worked on critical technology issues including the rollout of the National Broadband Network, the auction and distribution of sections of the radio communications spectrum, and network pricing regulation. He also worked as the deputy chief of staff for the Minister for Communications and as a senior adviser to the Victorian Premier. Tim is the author of two books, *The golden country: Australia's changing identity* and *Two futures: Australia at a critical moment* (along with co-author and fellow MP, the Hon Clare O'Neil). Mr Watts holds a Bachelor of Laws (Hons) from Bond University, a Master of Public Policy from Monash University and a Master of Science (Politics and Communications) from the London School of Economics.

# EVENT PARTNERS

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