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ROYAL  
SOCIETY  
NEW SOUTH WALES

## The Bulletin 474

### August 2023

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#### A message from the President

Dear <<First Name>> <<Last Name>>

In this column, I draw your attention to a few time-limited requests. The date, Friday 28 July, looms as the deadline for sharing your thoughts about the Society and its future by completing the [online survey](#). Do ensure that we receive the benefit of your insights. There will be an opportunity for further consultation as the Master Plan is being developed.



Nominations for the Society's Awards opened on 1 July and close on 30 September. You should refer to our website for [full details](#) and the nomination forms because of the new structure being introduced this year. Nominations will be open for four career excellence medals, four discipline awards, several postgraduate scholarships and early career research and service awards, together with internal awards.

Registration is still open to attend the Society's [1314th Ordinary General Meeting](#) in Sydney on 2 August. The Open Lecture, to be delivered by futurist Catherine Ball and innovation strategist Maria MacNamara will address the implications of the convergence of human and technological intelligence. Each of our three branches also will be hosting lectures on compelling issues of the day in August or early September. All of them are listed on our website and social media channels. I encourage you to re-post them to your networks.

There is still time to add the third and final Ideas@theHouse for 2023 at Government House, Sydney, on 10 August to your calendar. Registrations to attend in person have closed but the event will be live-streamed as Professor Emma Johnston AO FRSN FAA

FTSE speaks about [“Ideas for marine stewardship and sustainability in a time of acceleration.”](#) I encourage you to spread the word throughout your networks about this presentation on such an important topic. As usual, I have invited students from NSW Universities to attend in person. They are drawn from as far afield as Alice Springs and Brisbane, as well as regional NSW. If you are attending in person, please make them welcome.

Another date for your calendar is this year’s RSNSW and Learned Academies Forum to be held in person at, and live-streamed from, Government House Sydney, on Thursday 2 November. You will receive an invitation to register for the Forum in late September or early October. The theme for the day, [“Our 21st Century Brain”](#), leads to far-reaching questions including whether we have reached the edge of our human capacity to respond effectively as either individuals or collective groups.

We work for the Society and for NSW because we understand the need to enhance public discourse on a wide range of topics that are crucial to our future. Society members have excellent ideas to contribute. In that spirit, I look forward to hearing your ideas and suggested ways to bring them to fruition.

Susan M Pond AM FRSN FTSE FAHMS  
[President, Royal Society of NSW](#)

## For your diary

- [1314th Ordinary General Meeting and Open Lecture](#) (Wednesday, 2 August, 6.00 for 6.30 – 8.00 pm AEST, Gallery Room, Mitchell Building, State Library of NSW), *Convergence: the hybridisation of the future*, Associate Professor Catherine Ball in conversation with Maria MacNamara
- [Charles Perkins Centre Annual Lecture 2023](#) (Wednesday, 2 August, 5.30 – 7.00 pm AEST, The Mackenzie Room, Charles Perkins Centre, University of Sydney, Camperdown), *Public health sovereignty and public reason: a comparative perspective*, Professor Sheila Jasanoff, Pforzheimer Professor of Science and Technology Studies, Havard Kennedy School
- [Ideas@theHouse: August 2023](#) (Thursday, 10 August, 6.30 – 7.30 pm AEST, live streaming from Government House Sydney, *Ideas for marine stewardship and sustainability in a time of acceleration*, Professor Emma Johnston AO FRSN FAA FTSE, Deputy Vice-Chancellor (Research), University of Sydney
- [Western NSW Branch Meeting 2023-3](#) – conducted jointly with Charles Sturt University (Wednesday, 16 August, 6.00 – 8.00 pm AEST, Charles Sturt University, Panorama Avenue, Bathurst), *Behavioural Data Science as a Game Changer for Understanding the Interface between Human and Digital Systems in the New Digital Economy*, Professor Ganna Pogrebna, Executive Director, Artificial Intelligence and Cyber Futures Institute, Charles Sturt University
- [Southern Highlands Branch Meeting 2023-7](#) (Thursday, 17 August, 6.30 – 7.30 pm AEST, RSL Mittagong, Carrington Room), *Crop productivity in a stressed environment*, Professor Richard Trethowan, Director, Plant Breeding Institute, Sydney Institute of Agriculture, University of Sydney
- [RSNSW Online Presentation 2023-3](#) (Wednesday, 6 September, 6.30 – 8.00 pm AEST, live streaming on Zoom), *Challenges for Open Enquiry and Scholarship in a Divided Age*, Professor Alan Davison, Professor and Dean, Faculty of Humanities and Social Sciences, University of Technology Sydney

- [Southern Highlands Branch Meeting 2023-8](#) (Thursday, 21 September 2023, 6.30 – 7.30 pm AEST, RSL Mittagong, Carrington Room), *Gender dysphoria: emerging teen challenges*, Clare Rowe, Principal Psychologist and Director, Rowe & Associates

The Society's complete events program for the year is published in the [online Events Calendar](#), which is updated regularly.

## News

### Kings Birthday Honours – updated

The Society was delighted to learn of the awards to the following Society Fellows and Members who appeared in the 2023 King's Birthday Honours List.

*Please note that since the original news item was published, the Society has been notified of two additional members who were so honoured. These people are identified in the list below by a prepended asterisk.*

The following have been honoured as Members of the Order of Australia (AM).

**Marcela Bilek AM FRSN FAA**, Professor of Applied Physics and Surface Engineering at the University of Sydney, for significant service to physics and biomedical engineering.

**Merlin Crossley AM FRSN**, Professor of Molecular Biology and Deputy Vice-Chancellor (Academic Quality) at UNSW Sydney, for significant service to education and to molecular biology.

**Rebecca Ivers AM FRSN**, Scientia Professor of Public Health at UNSW Sydney, for significant service to community health through injury prevention research and education.

**James Renwick AM CSC FRSN SC**, Barrister with 12 Wentworth Selborne Chambers, for significant service to the law and to national security.

**(\*) John Roberts AM FRSN FASSA**, Scientia Professor of Marketing at UNSW Sydney, for significant service to tertiary education, and to business and management.

**Wendy Sharpe AM FRSN**, a renowned Australian artist, who received her honour for significant service to the visual arts and to the community.

**Phil Waite AM FRSN**, Emeritus Professor at UNSW Sydney, for significant service to medical science, and to tertiary education.

The following has been honoured with the Medal of the Order of Australia (OAM).

**John Dunnet OAM MRSN** for service to the print media industry.



## King's Birthday Honours

(\*) **Clive Probyn OAM MRSN**, Emeritus Professor at Monash University, for service to tertiary education

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## Society welcomes new Fellows and Members: June 2023

The Royal Society of NSW warmly welcomes 13 new members to the Society's ranks, effective from 7 June 2023.

### Fellows

Professor Les Copeland  
Professor Bing-Jie Ni  
Professor Roger Reddel  
Professor Renae Ryan  
The Hon. Gabrielle Upton  
Dr Allan Williams

Biographical information about the new Fellows is available on the [Fellows pages](#) of the website.

### Members

Ms Tina Allen  
Professor Trevor Brown  
Dr Andrea Coda  
Ms Ann Fieldhouse  
Mr Andrew Mortimer  
Ms Patricia Kay Philip  
Mr Craig Symes

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## Society Fellows, Gary Froyland and Catherine Stampfl, awarded ARC Laureate Fellowships

The Royal Society of New South Wales was delighted to learn on 3 July that two of its Fellows, **Professor Gary Froyland FRSN FAA**, from the School of Mathematics and Statistics at UNSW Sydney, and **Professor Catherine Stampfl FRSN FAA**, from the School of Physics at the University of Sydney, have been awarded Australian Research Council Laureate Fellowships for 2023.



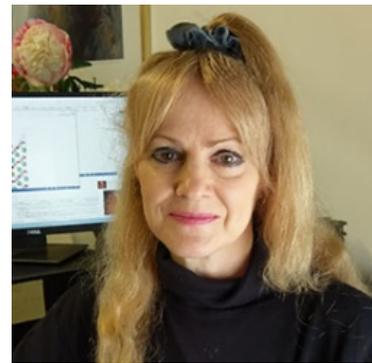
## Award Winners

In his project, titled 'Breakthrough mathematics for dynamical systems and data', **Professor Froyland** aims to create a step change in the mathematics we use to learn actionable information from dynamical systems and dynamical data. Using a groundbreaking, operator-theoretic approach to analyse high dimensional systems and

spatiotemporal data, this project expects to generate new knowledge in the modelling of complex systems and new pathways for unsupervised machine learning. By developing new mathematical tools and practical algorithms this project will enable us to better discover hidden patterns in complex spatiotemporal data, providing social and economic benefits by improving the characterisation and prediction of key Australian climate drivers, which are connected to droughts, heatwaves, bushfires, and major flooding. Professor Froyland's research will also shed new light on social processes such as opinion spreading and the formation of consensus.



In being awarded the 2023 Georgina Sweet Australian Laureate Fellowship, **Professor Stampfl** will have significant ambassadorial and mentoring roles, supported by additional funding, in addition to her research project. This project, titled 'Computational design of frontier materials for sustainable technologies', will focus on new catalysts and advanced new materials that speed up carbon dioxide transformation and efficient ammonia production to manufacture sustainable fuels and chemicals and enable new technologies such as for renewable energy. This research will develop a computational platform that uses powerful supercomputers, accurate simulations of atoms, and artificial intelligence to overcome challenges in rapidly identifying and testing new materials. The breakthrough theoretical and computational methods expected to be delivered will advance Australia's renewable energy and emerging quantum technology industries and inform the development of sustainable manufacturing.



Her ambassadorial and mentoring roles will focus on two activities: supporting female students from regional and remote Australia to study science at university, and supporting early career researchers who are parents in their research. Further information about these [developmental activities](#) can be found on the ARC website.

The Council of the Royal Society of New South Wales extends its warm congratulations to Professor Stampfl and Professor Froyland on this recognition of their outstanding scientific achievements.

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## **Society Fellow, Theo Farrell, appointed as the next Vice-Chancellor of La Trobe University**

The Royal Society of New South Wales is delighted to learn that **Professor Theo Farrell FRSN FAcSS**, currently the Deputy Vice-Chancellor (Academic and Student Life) at the University of Wollongong, has been appointed as the next Vice-Chancellor of La Trobe University in Melbourne from February 2024.

Professor Farrell joined the University of Wollongong in 2017 as an Executive Dean and was promoted to Deputy Vice-Chancellor in 2019. He is a Fellow of the Academy of Social Sciences (UK), a Fellow of the Royal Society of Arts (UK), a Fellow of the Royal Society of New South Wales, a



Senior Associate Fellow of the Royal United Services Institute, a Visiting Professor in War Studies at King's College London, and a former President of the British International Studies Association.

Before moving to Australia, Professor Farrell held leadership and prestigious professorial roles in the UK at King's College London and City, University of London. He received ten UK research council awards, including a three-year Global Uncertainties research fellowship. His book, *Unwinnable: Britain's War in Afghanistan* (Penguin Random House 2017) was shortlisted for three national book awards and selected book of the year by The Sunday Times. A leading scholar of the Afghan war, he previously acted as a strategic advisor to the UK government and US-led command in Kabul and participated in track II peace talks with the Taliban.

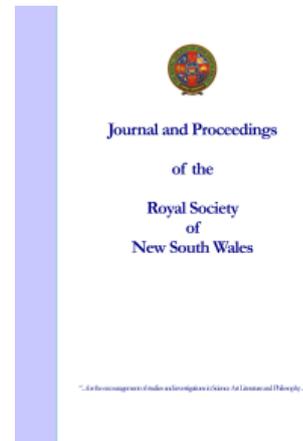
The Council of the Royal Society of New South Wales extends its warm congratulations to Professor Farrell and wishes him well in his new role at La Trobe University.

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## June 2023 issue of the Journal is now available online

The June 2023 issue of the *Journal and Proceedings of the Royal Society of NSW* is now [available online](#).

This issue of the Journal focuses on the proceedings of the 2022 Royal Society of New South Wales and Learned Academies Forum, [Reshaping Australia – Communities in Action](#). There are 25 contributions, including introductions and summaries, that cover the themes of *Setting the Scene*, *Health and Communities*, *Natural and Built Environment*, and *Education*. A number of the papers have been contributed by the presenters while others are transcripts of the recorded presentations. The original video recordings associated with each of the papers can be accessed from the [Forum page](#) on this website, together with the associated [playlist on YouTube](#).



The current issue also includes:

- an edited version of the presentation delivered by Emeritus Professor Hugh White AO FASSA of ANU at the 1304th Ordinary General Meeting on 6 July 2022 titled '[This is going to be different: Learning to live with China](#)' – the most popular of the recordings on our YouTube channel which, at the time of publication, had received in excess of 36,000 viewings.
- obituaries of three Society Fellows who have passed away recently: Dr Ragbir Bathal FRSN, a former President of the Society, Emeritus Professor Christopher Fell AO FRSN FTSE, and Emeritus Professor Jeremy Davis AM FRSN.

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## Society Fellows nominated as Finalists in the 2023 Australian Museum Eureka Awards

A number of Society Fellows are among the [finalists of the 2023 Australian Museum Eureka Awards](#)—the country’s most comprehensive national science awards, honouring excellence across the spectrum of research and innovation, leadership, science engagement, and school science. Presented annually in partnership with some of the nation’s leading scientific institutions, government organisations, universities, and corporations, the Eureka Prizes raise the profile of science and science engagement in the community by celebrating outstanding achievements..



Amongst the finalists in this year’s Prizes are:

- **Professor Qilin Wang FRSN** of the University of Technology Sydney, leader of the Sustainable Wastewater Treatment Team — nominated for the NSW Environment and Heritage Eureka Prize for Applied Environmental Research
- **Professor Richard Kingsford FRSN** of UNSW Sydney, leader of the Waterbirds Aerial Survey Team — nominated for the NSW Environment and Heritage Eureka Prize for Applied Environmental Research
- **Distinguished Professor Karu Esselle FRSN** of the University of Technology Sydney, leader of the MetaSteerers team — nominated for the Department of Defence Eureka Prize for Outstanding Science in Safeguarding Australia
- **Professor Merlin Crossley AM FRSN** — nominated for the UNSW Eureka Prize for Scientific Research
- **Professor Kate Jolliffe FRSN FAA** of the University of Sydney— nominated for the University of Technology Sydney Eureka Prize for Outstanding Mentor of Young Researchers
- **Professor Renae Ryan FRSN** of the University of Sydney — nominated for the University of Technology Sydney Eureka Prize for Outstanding Mentor of Young Researchers
- **Scientia Professor Toby Walsh FRSN FAA** of UNSW Sydney— nominated for the Celestino Eureka Prize for Promoting Understanding of Science.

Also included in the list of finalists are recent winners of Royal Society of New South Wales Awards:

- **Professor Dietmar Müller FAA** of the University of Sydney, winner of the 2019 RSNSW Clarke Medal and leader of the GPlates team — nominated for the Australian Research Data Commons Eureka Prize for Excellence in Research Software
- **Associate Professor Noushin Nasiri** of Macquarie University, winner of the RSNSW 2021 Warren Prize — nominated for the Macquarie University Eureka Prize for Outstanding Early Career Researcher.

The Council of the Royal Society of New South Wales extends warm congratulations to each of the above finalists on this recognition of their achievements.

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**Vale Emeritus Professor Adrian Lee FRSN**

The Society is saddened at the passing of one of its Fellows, **Emeritus Professor Adrian Lee FRSN**, on 21 July 2023.



Adrian Lee was a significant and important medical academic. He was in academe professionally for 54 years, became Professor of Medical Microbiology at the University of New South Wales, was a Pro-Vice-Chancellor at that University, was an Emeritus Professor of that University, had received an honorary doctorate from another university for his important work, and was, of course, a Fellow of this Society.

Robin Warren and Barry Marshall needed Adrian Lee for the ground-breaking work they did to earn their Nobel Prize in Physiology or Medicine in 2005. He heard them present in Brussels in 1983 and was sufficiently impressed to want to help them in their endeavours. He, on the East Coast, helped those colleagues in Perth — he was the one who was able to culture and grow the *helicobacter pylori* organisms for them. When Warren and Marshall received the Nobel prize, Adrian Lee accompanied them to Stockholm where he was an honoured guest. Gastroenterologists in Australia know the names of Warren and Marshall but few know, or remember, the important contribution of Adrian Lee to that paradigm-altering enterprise. So, he is an unsung hero.

Do you remember the cryptosporidium scare when cryptosporidium cysts were found in Sydney drinking water? Doubtless, the kangaroos in the water catchment were ingesting and shedding cryptosporidium spores constantly, and the presence of those spores in water should not have surprised anyone. Adrian Lee's advice at that time was to drink the water and not to worry too much, but there was a public outcry and mothers in Sydney were still boiling drinking water for their children — just to be sure.

Adrian Lee was approachable and friendly and ready to answer questions — he was a pleasure to be with and to know.

He bore his final and long illness with quiet fortitude.

Peter Baume AC DistFRSN

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## Events

### 1314th Ordinary General Meeting and Open Lecture

**Convergence: the hybridisation of the future**

**In conversation:**

**Associate Professor Catherine Ball**  
**Futurist, Author, Researcher, Rebel**

**and**

**Maria MacNamara**  
**Director, Government Affairs and**

## Innovation Strategy, Kyndryl

**Date:** Wednesday, 2 August 2023, 6.00 for 6.30 — 8.00 pm AEST

**Venue:** Gallery Room, State Library of NSW, 1 Shakespeare Place, Sydney

**Entry:** Society members, \$10; Non-members, \$20; Students, \$5

**Registration:** [Registration through Membes](#) is required before 2.00 pm on 2 August

**Drinks:** available from a cash bar from 6.00 pm

**All are welcome**

[Please click here to register](#)



**Summary:** Convergent technologies are accelerating business model evolution, and also changing our tolerance and social licence around them. How can we accept technologies we don't understand? Is there trust when it comes to taking these hardware and software into our homes? Would you let your children have an implantable device, or even offer up your genome as proof of ID?

As the world mixes the human and the technological, we are entering Industry 5.0 — the Internet of Things has become the Internet of Bodies. How much privacy are we willing to hand over in order to protect the cyber security of life as usual? All these questions have been around for some time, but they have never been so pressing.

With the rise and rise of Generative AI, the scaling of technology seems to have caught some by surprise: including our regulators and governance leaders. Associate Professor Catherine Ball will aim to open some of Pandora's box and demystify where we are and what future we are looking at. Ultimately, we still have consent. We can still turn it all off. Can't we?

### About the Speakers

An Associate Professor in the practice of engineering at the Australian National University, **Dr Catherine Ball** is a scientific futurist, speaker, advisor, author, founder, executive producer, executive director, and company director working across global projects where emerging technologies meet humanitarian, education, and environmental needs. Catherine also likes to create businesses and champion movements, collaborate with peers, and advise game-changers.

Catherine Ball is a sought-after voice across the start-up, futurist, and tech world, working globally across a wide range of projects from creating documentaries and world-leading conferences and events, to advising on the use of novel approaches (e.g., drones) across environmental and humanitarian projects. She is a proponent of community engagement with STEM (Science, Technology, Engineering, and Mathematics), and seeks to demystify emerging tech.

As a 'social architect' and a champion of diversity and inclusion, Catherine Ball aims to connect people from different backgrounds across common themes. Working to protect the natural environment and empowering all members of society through mutual education are core aspects of the projects on which Catherine chooses to spend her time and

energy. Catherine continues to support Australia as being the world leader in the advancement of ethically driven technological applications.

Catherine lives in Queensland with her husband and two sons. She holds a BSc Honours (Environmental Protection) and a PhD (Spatial Ecology, Descriptive and Predictive Statistics) from the University of Newcastle-upon-Tyne in the United Kingdom.

**Maria MacNamara** has specialist expertise in policy, strategy, and digital transformation. She recently completed a transformation of Australia's global diaspora organisation, Advance.org, and is currently the Director of Government Affairs and Innovation Strategy at Kyndryl. Maria is an Industry and Professional Fellow at UTS, chairs the strategy board for the ARC Training Centre for Information Resilience (CIRES), and is a member of the Business School's Board of Advice at the University of Sydney. She is a non-executive Director of Portal Ideas, the Spark Festival, and sits on the Advisory Boards of the AUKUS Forum, IdeaSpies, and Zitavi. Maria recently retired from the Advisory Board of Internet 2.0 and the Advisory Council for the Commissioner of the Australian Federal Police.

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## Charles Perkins Centre Annual Lecture 2023

**Public health sovereignty and public reason:  
a comparative perspective**

**Professor Sheila Jasanoff**

**Pforzheimer Professor of Science and Technology Studies  
Harvard Kennedy School**



**Date:** Wednesday 2 August 2023, 5.30 pm – 7.00 pm AEST

**Venue:** The Mackenzie Room, Charles Perkins Centre, University of Sydney (Camperdown)

**Registration:** [Registration through the University of Sydney](#) is required

**Entry:** Free

**All are welcome**

[Please click here to register](#)

*The 2023 Charles Perkins Centre Annual Lecture is presented jointly by the University of Sydney Charles Perkins Centre and the Sydney Law School.*

**Summary:** Drawing on varied policy responses to the Covid-19 pandemic, Professor Jasanoff argues that national health policies reflect underlying social compacts regarding the mutual obligations of citizens, experts, and the state. This approach helps make sense of wide divergences in measures taken by states worldwide to combat Covid-19 and ensure recovery.

This talk challenges conventional understandings of modernity as the product of two trajectories that sustain each other and improve human futures: one of advances in science and technology and the other of social progress. Progress is here imagined as always in-the-making, riding on the wings of scientific enlightenment. There is no room for backsliding in this view, only the horizon of greater emancipation.

But what if this idea of modernity is itself an imaginary overlaid on less tidy epistemic and political commitments? What if, instead of perfection through knowledge and reason, modernity is a patchwork of opaque delegations whereby control over minds, bodies, and nature's workings is handed over to experts with quasi-sovereign power to regulate their respective domains? Empirically exploring these questions provides insights into contemporary debates on populism and loss of trust in science.

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## Ideas@theHouse: August 2023



**Ideas@theHouse**

**presented by**

**Her Excellency the Honourable  
Margaret Beazley AC KC, Governor of NSW**



**Ideas for marine stewardship and sustainability  
in a time of acceleration**

**Professor Emma Johnston AO FRSN FAA FTSE  
Deputy Vice-Chancellor (Research)  
University of Sydney**

**Date:** Thursday, 10 August 2023, 6.30 – 7.30 pm AEST (live streaming)

**Venue:** [Live streaming](#) from Government House Sydney, with a YouTube recording thereafter

**Entry:** No charge

**All are welcome**

*Please note that Society members who have registered for a place at the face-to-face event at Government House Sydney will receive their invitations in the week following the closure of registrations on 21 July 2023.*

**Please click here to join the live stream on  
Thursday 10 August at 6.30 pm**

**Summary:** Our ocean ecosystems are facing great challenges. Human impacts are growing, leading to rapid changes in ecosystem structure and function. Accelerating ecological processes, tipping points and vicious cycles suggest a rapid worsening of conditions.

In this talk, Professor Johnston will describe the key drivers of ecological acceleration, how they act in concert, and the implications for marine and coastal social-ecological

systems. She will then present ideas for converting vicious cycles to virtuous ones through effective environmental stewardship.

Finally, Professor Johnston will present a case study of the recent Australian State of Environment Report and how sustainability has been addressed by the inclusion of three new dimensions in this report: centering Indigenous perspectives, developing well-being assessments, and linking to the UN Sustainable Development Goals.

**Professor Emma Johnston** is a leading authority in marine ecology, a sustainability and diversity champion, and a chief author of the Australian State of Environment Report 2021. Professor Johnston is the Deputy Vice-Chancellor (Research) at the University of Sydney. She has held the roles of Pro Vice-Chancellor (Research) and Dean of Science at UNSW and is a past President of Science & Technology Australia (STA).

Professor Johnston has led major research projects for industry, government, the Australian Research Council, and the Australian Antarctic Science Program, and has contributed to the development of national and international research priorities and plans. She is a Director of the Great Barrier Reef Marine Park Authority and a Governor of the Ian Potter Foundation.

Professor Johnston was made an Officer of the Order of Australia (AO) in 2018 for distinguished service to higher education, particularly to marine ecology and ecotoxicology, as an academic, researcher, and administrator, and to scientific institutes.

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## Western NSW Branch Meeting 2023-3

**Behavioural data science as a game changer for understanding the interface between human and digital systems in the new digital economy**

**Professor Ganna Pogrebna**

**Executive Director  
Artificial Intelligence and Cyber Futures Institute  
Charles Sturt University**



**Date:** Wednesday, 16 August 2023, 6.00 — 8.00 pm (AEST)

**Venue:** Engineering Building, Building 1305, Charles Sturt University, Bathurst

**Entry:** Free

**Registration:** [Registration through Eventbrite](#) is required for the face-to-face and online events

**All are welcome**

**Please register now**

*This meeting is a joint presentation of Charles Sturt University and the Western NSW Branch of the Royal Society of New South Wales.*

**Summary:** Behavioural data science refers to a new field, combining cross-disciplinary methods from behavioural science, economics, psychology, data science, and computer science to design new modelling approaches in order to better understand and predict

three strands of behaviour: (i) human behaviour (e.g., consumer decision making); (ii) algorithmic behaviour (e.g., detecting and preventing algorithmic bias as well as understanding the interactions between algorithms and humans); and (iii) systems behaviour (e.g., designing complex but effective systems to maximise people's potential). This talk will introduce the field as well as discuss its impact on a number of domains including cybersecurity, financial services, talent management, leadership, and others. Using concrete practical examples, it will demonstrate how behavioural data science not only offers new models and methods, but also changes the game across a number of applications, providing major innovations in the context of the New Digital Economy and Industrial Revolution 4.0, which are delivered to citizens and customers in effective, transformative, and disruptive ways.

**Professor Ganna Pogrebna** is a pioneer in behavioural data science and is the Executive Director of the Artificial Intelligence and Cyber Futures Institute at Charles Sturt University. Blending behavioural science, AI, computer science, data analytics, engineering, and business model innovation, Ganna helps businesses, cities, charities, and individuals to better understand why they make the decisions they make and how they can optimise their behaviour to achieve higher profit, better social outcomes, as well as flourish and bolster their wellbeing. Her recent projects focus on smart technological and social systems, cybersecurity, human-computer and human-data interactions and business models. Her most impactful projects concentrated on [cybersecurity as a behavioural science](#) as well as [applications of behavioural data science to the media industry](#). Her digital security risk-tolerance scale (CyberDoSpeRT) is widely used in Australia and abroad.

Professor Pogrebna's contributions to risk analytics and modelling were recognised by the Leverhulme Research Fellowship award. In January 2020, she was also named as the winner of TechWomen100 — the prize awarded to leading female experts in Science, Technology, Engineering and Mathematics in the UK. She has also been named as one of 20+ [Inspiring Data Scientists by the AI Time Journal](#). Ganna runs the [Data Driven blog on YouTube](#) as well as [Inclusion AI blog](#). Her work is regularly covered by the traditional as well as social media. Ganna is one of the [contributors to the Oxford Handbook of AI Ethics](#). She is also currently co-editing the Cambridge Handbook of Behavioural Data Science, which is due to be published in 2023 by Cambridge University Press.

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## Southern Highlands Branch Meeting 2023-7

**Can plant breeding help us manage the challenges of climate change and food insecurity?**

**Professor Richard Trethowan**

**Director, Plant Breeding Institute  
Sydney Institute of Agriculture  
University of Sydney**



**Date:** Thursday, 17 August 2023, 6.30 – 7.30 pm AEST

**Venue:** RSL Mittagong, Carrington Room

**All are welcome**

**Summary:** As agricultural production systems become increasingly marginal in many parts of the world, will genetic technologies continue to play a significant role in mitigating the impacts of climate change? The Green Revolution saw crop productivity skyrocket in most agricultural systems, however, the rate of increase in productivity has largely plateaued since the turn of the century. The extent to which plant breeding can meet these future challenges will be discussed using wheat, Australia's major grain crop, as an example.

**Richard Trethowan** holds the Chair of Plant Breeding and is currently Director of the Plant Breeding Institute in the School of Life and Environmental Sciences at the University of Sydney. He has extensive experience in international agriculture, particularly in wheat breeding and genetics. He has led many national and international initiatives that aim to improve the productivity, sustainability, and profitability of agricultural systems. In 2021, he was awarded the Royal Society of NSW Poggendorff Lectureship.

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## RSNSW Online Presentation 2023-3

### Challenges for Open Enquiry and Scholarship in a Divided Age

**Professor Alan Davison**

**Dean, Faculty of Humanities and Social Sciences  
University of Technology Sydney**



**Date:** Wednesday, 6 September 2023, 6.30 — 8.00 pm AEST

**Venue:** [Zoom webinar](#)

**Entry:** no charge

**All are welcome**

[Please click here to join the webinar](#)

**Summary:** Are the current settings within the “ecosystem” of academia – career incentives, and the pressures of social media and public discourse – optimal for generating the best research? In this talk, Alan Davison will outline some of the key drivers in our current academic environment and public discourse that are inimical to genuine research innovation and deep inquiry, how some disciplines are seeking to redress this (such as in the US with the Society for Open Inquiry in the Behavioural Sciences – SOIBS), and what might be done here in Australia.

**Professor Alan Davison** is Dean of the Faculty of Arts and Social Sciences at the University of Technology Sydney. His research interests cover music and visual culture, art and aesthetics, celebrity studies, and 19th-century European cultural history. More recently he has actively promoted viewpoint diversity within our academic communities (as the lead for Heterodox Academy in Australia), and has published both scholarly and popular articles on trends in social sciences and humanities research. In late 2021, Alan partnered with well-known media figure Josh Szepts to launch the “[Permission to Think](#)” speaker series, which invites prominent scholars to look at the role of intellectuals and institutions during this age of outrage in public debate of complex issues, especially in the

Humanities, Arts, and Social Sciences (HASS) disciplines. To date, guests in the series have included the likes of Jon Haidt and Alice Dreger.

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## Southern Highlands Branch Meeting 2023-8

### Gender dysphoria: emerging teen challenges

**Clare Rowe**

**Principal Psychologist and Director  
Rowe & Associates**



**Date:** Thursday, 21 September 2023, 6.30 – 7.30 pm AEST

**Venue:** RSL Mittagong, Carrington Room

**All are welcome**

**Summary:** The last ten years have seen an exponential rise in the diagnosis of Gender Dysphoria in children and adolescents, many of them going on to identify as Transgender. The treatment deemed best practice over that time has been ‘gender-affirming therapy’ but this has been with little evidence behind it. Clare Rowe, child psychologist, will explore where the extraordinary rise in these cases has emerged from, discuss the conceptualisation of these presentations as a mental health disorder, and finally make a case for an individualised nuanced approach to each child and family.

**Clare Rowe** is the founder of Rowe & Associates Child and Family Psychology. As an educational and developmental psychologist, she specialises in paediatric psychology including the assessment and diagnosis of childhood disorders such as ADHD, autism spectrum disorders, learning disorders, and giftedness. She has extensive experience in the treatment of childhood and adolescent anxiety and depression, and parental training in behavioural management with oppositional behavioural difficulties. Clare specialises in common challenging behavioural difficulties and is passionate about empowering adults to be calm and confident parents through practical and hands-on support.

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## Branch and Committee Reports

### Program Committee Report

The Society provides an active program of events through the Hunter, Southern Highlands, and Western NSW branches, and in Sydney. With events held recently by the branches reported on separately in this Bulletin, this section focuses on the two most recent events held in Sydney.

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**Program**  
**Committee**

### Report on the 5 July online event from Sydney

On Wednesday, 5 July the Hon. Linda Burney MP, the Federal Minister for Indigenous Affairs, was at the National Press Club to discuss the Voice to Parliament. She argued very

strongly in favour of the legislation. Serendipitously, Emeritus Professor Peter Baume AC DistFRSN, a former Minister for Aboriginal Affairs in the Fraser Government had organised an online panel for the Royal Society of New South Wales on the topic “[What we need to know about ‘the Voice’ — before we vote](#)”.



His panel covered a range of views. Professor Megan Davis FRSN FASSA, a human rights and constitutional lawyer from UNSW, one of the principal architects of ‘the Voice’ put the arguments in favour forcefully; Dean Ashenden, political advisor, academic and journalist, set the historical context of the need for the legislation, and Chris Puplick AM a former Liberal MP put the argument for the No case.

In the best traditions of the Royal Society of NSW, the debate was reasoned, evidence-based and even tempered. The recording of this event is [now available on YouTube](#).

Christina Slade FRSN  
Chair, RSNSW Program Committee

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## Hunter Branch Report

### Presentation Report — 20 July 2023

**Groundwater: when will we learn that we can't drink money?**

**Professor Craig T. Simmons FAA FTSE FAGU**

**Pro Vice-Chancellor  
College of Engineering, Science, and Environment  
University of Newcastle**



In July, Professor Craig Simmons FAA FTSE, a world-leading expert on groundwater, presented the third lecture in the Hunter Branch-hosted program of public lectures for 2023. The audience was treated to an engaging, evidenced-based, and thought-provoking presentation that provided them with a deep understanding of groundwater and the impact environmental factors and human activities have on this component of the earth’s water.

Professor Simmons — pictured centre with Branch Chair Distinguished Emeritus Laureate Professor John Aitken (left) and Dr Brodie Beales (right) — highlighted an example of the human use of groundwater, identifying and calling into question the economic driver of such usage. After clarifying the extent and nature of groundwater on earth, he noted the oldest groundwater found to date is 2.6 billion years old and discussed the



characteristic very slow flow rates of groundwater and the lengthy timescales typically involved in replenishing groundwater aquifers. He evidenced the use of groundwater by humans thousands of years ago particularly when surface water was not available during droughts.

Professor Simmons detailed the impact of removing groundwater including land subsidence, declining water tables, and the reduction of water available to streams, lakes, and the ocean. He discussed the threats posed by pollution to deteriorating groundwater quality. He drew the audience's attention to the extensive use of groundwater today by industries such as mining, agriculture, and manufacturing noting that groundwater contributes over \$6,500 million to Australia's gross domestic product. He highlighted the tension surrounding groundwater that the substantial human demand and climatic stress have on aquifers, calling into question the sustainability of the use of groundwater as a water resource for a growing population in a changing climate.

In concluding his talk, Professor Simmons returned to his opening example and identified that, despite the established scientific research concerning groundwater, governments and regulatory bodies throughout the world often do not heed the scientific evidence of the impact that current practices in the usage of groundwater are having on the earth's limited water.

Philip Bolton  
Secretary, Hunter Branch

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## **Southern Highlands Branch Report**

### **Presentation Report — 20 July 2023**

#### **A recent study of nuclear energy usage in Canada and the USA**

**Robert Parker**  
**Founder, Nuclear for Climate**

In his recent overseas study, Robert Parker chose the Canadian province of Ontario to compare with the combined states of Victoria and New Southern Wales. Both areas have almost

identical land areas of 1 million km<sup>2</sup> and populations of 14.7 million. Both share a common heritage as former members of the British Empire. Both have migrants arriving to enhance their economies, and both are making provisions for their original populations. Both are young liberalised democratic nations.

These features of the two economies clearly show that they have much in common as a basis for this study, but stark differences become quickly obvious when other parameters are examined. Regarding emissions, data from 2020 show that Victoria and New South Wales combined emitted 32 times the emissions from Ontario. As for manufacturing statistics, Ontario was clearly more productive with its figure of \$315 billion well above \$238 billion

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from the Australian area chosen. Robert Parker attributed the availability of cheaper electricity as accounting for this huge difference.

Ontario delivers electricity with an emissions intensity of only 25 gm CO<sub>2</sub>/kWh thanks to nuclear energy being the main source and backed up by hydro and renewables. Ontarians and USA residents pay about half the going rate for electricity that we pay in Australia. Because of these lower emissions and cheaper pricing for a reliable electricity supply, other countries are being attracted to Ontario to take advantage. Volkswagen is one example of a company that is moving away from Germany where electricity prices are the second highest in Europe.

With thanks to Dr Robert Barr and Dr Michael de Percy for their wonderful contributions during question time. This excellent lecture attracted 75 attendees

Anne Wood FRSN  
Chair, Southern Highlands Branch

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## Western NSW Branch Report

### Branch News

Professor Stan Grant Jr launched Professor Dominic O'Sullivan's new book [Indigeneity, Culture and the UN Sustainable Development Goals](#) on Tuesday, 25 July 2023, at an event hosted by the Western NSW Branch of the Royal Society and Charles Sturt at the Charles Sturt Canberra campus.



Dominic's two previous books, which could not be launched due to COVID-19 lockdowns, were also celebrated at the launch. ['We are All Here to Stay': citizenship, sovereignty and the UN Declaration on the Rights of Indigenous Peoples \(2020\)](#) was launched by Her Excellency the Hon. Annette King, New Zealand High Commissioner to Australia, while [Sharing the Sovereign: Indigenous Peoples, Recognition, Treaties and the State \(2021\)](#) was launched by Associate Professor Will Sanders, Honorary Senior Fellow, Centre for Aboriginal Economic Policy Research, Australian National University.

### Forthcoming Events

The next event in the Provocations Public Lecture series, titled "[Behavioural Data Science as a Game Changer for Understanding the Interface between Human and Digital Systems in the New Digital Economy](#)", will be presented by **Professor Ganna Pogrebna**, Executive Director of the Artificial Intelligence and Cyber Futures Institute at the Charles Sturt University Campus, in Bathurst on Wednesday, 16 August (6.00 pm AEST).



Professor Pogrebna is a pioneer in behavioural data science and in her talk she will introduce the field, discuss its impact on cybersecurity, financial services, talent management, leadership, amongst other areas, and demonstrate how this new field not only offers new models and methods but also provides major innovations in the context of the New Digital Economy and the Industrial Revolution 4.0.

Registration for this event is available on [Eventbrite](#) and a recording of the event will be made available on the Society's YouTube channel.

[Future events](#) in the Provocations lecture series include:

- *Rural and regional health*, Professor Allen Ross (Wednesday, 18 October, CSU Orange campus)
- *Thirst for power – The rivers of conflict in Southeast Asia*, Professor Lee Baumgartner (Thursday, 16 November, CSU Albury campus).

We hope that you will be able to join us for these jointly hosted events, which feature experts from various fields sharing their research and insights. Each lecture will be followed by a Q&A session allowing you to interact directly with the speakers. Admission is free, light refreshments will be provided, and it will also be live-streamed.

Nilima Mathai  
Secretary  
Western NSW Branch

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## The Society and Social Media

The Society's presence on social media platforms is steadily growing. Our [Facebook page](#), [LinkedIn channel](#), [Twitter feed](#), and [YouTube channel](#) continue to attract and engage followers and viewers, and we continue to build a repository of events on YouTube. Our YouTube channel has almost 575 subscribers while the more than 120 videos online have received in excess of 60,000 viewings.

The icons below will take the reader to our pages on these platforms, from where you can follow, subscribe, and be notified of new content.

*As a Society member, please consider subscribing to our social media channels to support the Society's outreach, and also please encourage your friends and colleagues to do similarly.*



## YouTube recordings of recent events

All online presentations, and all face-to-face presentations held in Sydney and by the Western NSW Branch, are recorded and uploaded to the Society's YouTube channel. These can be accessed directly from [YouTube](#) or from the website [Presentations page](#).

For convenience, the video links below provide access to recordings from the most recent three months. We hope that these will be of interest to members.



YouTube recording of the RSNSW Online Presentation 2023-2 held on 5 July 2023 on the subject of *What we need to know about the 'Voice' — before we vote* — an informative panel session featuring Emeritus Professor Peter Baume AC DistFRSN, Professor Megan Davis FRSN FASSA, Pro Vice-Chancellor (Indigenous), UNSW Sydney, Christopher Puplick AM, and Dean Ashenden. A summary of the panel and a brief biography of each of the presenters is available from the [online event notice](#).



YouTube recording of the lecture delivered at the Society's Western NSW Branch 2023-2 meeting by Professor Wayne Hudson FAHA of the Australian Centre for Christianity and Culture, Charles Sturt University on the subject of *A new history of Australian political thought*. An abstract of the talk and the biography of the presenter is available from the [online event notice](#).



YouTube recording of Ideas@theHouse: June 2023 from 14 June 2023 on the subject of *Importance of scientific ideas and discovery to Australia's future*, delivered by Dr Cathy Foley AO PSM DistFRSN FAA FTSE, Australia's Chief Scientist. An abstract of the talk and the biography of the presenter is available from the [online event notice](#).



YouTube recording of the 1313th Ordinary General Meeting from 7 June 2023 on the subject of *Making rights a reality — the need for a Human Rights Act for Australia*, delivered by Emeritus Professor Rosalind Croucher AM FAAL, President of the Australian Human Rights Commission. An abstract of the talk and the biography of the presenter is available from the [online event notice](#).

# ARTIFICIAL INTELLIGENCE MYTHS DEBUNKED

PROFESSOR MICHAEL BLUMENSTEIN

ROYAL  
SOCIETY  
NEW SOUTH WALES



YouTube recording of the RSNW Online Presentation 2023-1 held on 3 May 2023 on the subject of *Artificial Intelligence myths debunked – how AI is transforming humanity for the global good*, delivered by Professor Michael Blumenstein FACS of the University of Technology Sydney. An abstract of the talk and the biography of the presenter is available from the [online event notice](#).

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Edited by: [Lindsay Botten](#) FRSN, Webmaster, Royal Society of NSW

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