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The Bulletin 478

December 2023

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A message from the President

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

Writing the closing Bulletin for 2023 leads me to wish you and your families all the best for the year's end festivities and break. I am sure that you will look back over 2023 at the many milestones and accomplishments that have defined your year.



Leading up to December, our Southern Highlands and Western NSW Branches have events scheduled in November. The final meeting for the year in Sydney, on 29 November, features our 2022 James Cook Medal winner, Emeritus Professor John Church AO FAA FTSE addressing the question "[What do we really know about 20th- and 21st-century sea level change?](#)". Please come along and bring others with you to learn what John has to say and to mingle with colleagues and friends.

This November meeting will be part of the Society's 1318th Ordinary General Meeting (OGM). One of the agenda items will enable me to announce the names of the newest members of the Society — four Associate Members, six Members, and 14 Fellows. This brings me to thank Sean Brawley FRSN, Chair, Trevor Danos AM FRSN, Secretary, and all members of the [Fellows and Members Assessment Committee](#) for their wonderful contributions to the Society this year.

I echo the same sentiment to Merlin Crossley AM FRSN, Chair, Annabelle Duncan PSM FRSN, and all members of the [Awards Committee](#). Their work this year will culminate at the OGM when I announce the winners of the [Society's 2023 Awards](#) on 29 November. This is the first year of implementation of the Society's newly constituted awards portfolio which includes five historic awards and three that will be awarded for the first time — the Aboriginal and/or Torres Strait

Islander Scholars Medal, the Ida Browne Early Career Medal, and the RSNSW Award in Social and Behavioural Science. Some of the winners will be in the audience at the OGM.

We will be presenting the awards formally at the Society's Annual Dinner and Awards Presentation on Friday 1 March 2024. Please mark this in your calendar now. The dinner will be held in the Strangers' Room in Parliament House, Macquarie Street. The Hon. Stephen Kamper MP has kindly agreed to host the Society and I have invited our patron, Her Excellency the Hon Margaret Beazley AC KC, Governor of New South Wales. [Dr Saul Griffith FRSN](#) will electrify us as the after-dinner speaker. We have the capacity for up to 276 guests. It is never too early to secure seats for you and your guest(s). You will find the [event notice](#) on the Society's website and in this Bulletin, with the registration site, which closes at 5.00 pm on Wednesday 21 February, [available through this link](#). Expect to receive your invitation by email within the next two weeks. I encourage you to bring along younger colleagues to what promises to be a valuable networking opportunity.

Turning to the Society's own recent accomplishments and milestones, this year's RSNSW and Learned Academies Forum "[Our 21st Century Brain](#)" on 02 November was by all measures a great success. More than 20 recognised experts shared their insights across five sessions into two questions: "have we reached the edge of our human capacity to respond effectively as either individuals or collective groups?", or "will our awesome brain power enable us to navigate our way through?" Some attendees commented that we didn't quite answer either question which means that the conversation must continue, helped along by the recordings of each session on our [YouTube Channel](#), the social media traffic that continues to flow, and the June 2024 issue of the Society's *Journal and Proceedings* that will capture the enduring legacy of the day in written form. I thank Professor Ian Hickie AM FRSN and Emeritus Professor Philippa Pattison AO FRSN, co-chairs of the Program Committee, and all [members](#) of that and the Forum Planning Committee for staging yet another signature event.

Discussions to progress the re-establishment of the New England North-West Branch of the Society are progressing well. I attended a [full day of events in Armidale on 30 October](#), including the presentation that evening on "CleanTech Futures 2023: Electrification and opportunities for community and business" by [Professor Renate Egan](#), Executive Director, Australian Centre for Advanced Photovoltaics, UNSW Sydney, that was co-hosted by the Society. We live-streamed Professor Egan's presentation and panel discussion that followed and this has now been [uploaded to our YouTube Channel](#). I thank Emeritus Professor Lindsay Botten FRSN and Guy Loucks MRSN for making this possible.

The panel was moderated by the Deputy Vice-Chancellor (Research) at the University of New England, Professor Chris Armstrong. Panel members were Renate Egan, John Cleland (CEO, Essential Energy), James Hay (CEO, EnergyCo – NSW Government), and Sam Coupland (Mayor, Armidale Regional Council). It was a wonderful display of "town meeting gown" to discuss global, national, and regional issues. The Armidale region has been designated as a [Renewable Energy Zone](#) by the NSW Government.

The meetings during the day, which were coordinated by Dr Mary-Louise Conway, Director of the University of New England (UNE) Smart Region Incubator, began with a breakfast meeting at which I met at least 12 people from UNE (Vice-Chancellor, DVCR), UNSW, Armidale and Uralla shires, industry leaders, and Emeritus Professor Trevor Brown, who is coordinating the re-establishment of the New England Branch of the Society. Then followed a tour of the [New England Solar Farm](#), one of the largest in Australia, the flywheel installation at The Armidale School, and the UNE solar farm.

I took the opportunity to visit the [Royal Society of New South Wales Collection](#) that the RSNSW donated to the UNE Dixon Library in 1983. It was formally presented to UNE by the then President and officially opened in March 1986 at a ceremony held in conjunction with the twenty-fifth anniversary of the New England Branch of the Society. I also took the opportunity to present new member certificates to Professor Vicki Bitsika FRSN, Professor Trevor Brown MRSN, Professor Christopher Fellows MRSN, and Professor Christopher Sharpley FRSN.

Also, during the past few weeks, the Council and other Society members have been engaged in the Master Planning Project that is being facilitated by design thinkers from Poetic Thinking. We have already completed the survey of all members, in-depth interviews with 16 individuals at various stages of their career and association with the Society to gain deeper qualitative insights, and an all-day in-person workshop on 27 October attended by Council members and others. That same group will attend an update session on 8 December and work will continue throughout December. Do get in touch if you would like to add your views.

Another feature in our year-end calendar of course is to invite members to renew their subscription for 2024. The membership fee will remain unchanged from 2023. You would have received the first email about renewing your subscription on 29 October. My letter outlines the many accomplishments of the Society during 2023 and its even greater ambitions for 2024 and beyond that are being framed currently through the Master Planning Project.

Last but not least, you would have received an email from Election Buddy on 10 November inviting you to vote on the Resolution by Council to enter into an agreement with the State Library of New South Wales (SLNSW) for the Donation of the RSNSW Collection to the Library. The email summarised the reasons for this recommendation and included a link to an [explanatory memorandum](#) outlining the background to this proposal, the substance of the recommendation to be put before members, and the proposed terms for the agreement between RSNSW and SLNSW. Voting remains open until the close of business on 30 November.

We work for the Society 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 Pond AM FRSN FTSE FAHMS
[President, Royal Society of NSW](#)

For your diary

- [1318th Ordinary General Meeting and Open Lecture](#) (Wednesday, 29 November, 6.00 for 6.30 – 8.00 pm AEDT, Gallery Room, Mitchell Building, State Library of New South Wales, 1 Shakespeare Place, Sydney), *What do we really know about 20th and 21st-century sea-level change?* Emeritus Professor John Church AO FAA FTSE FAMS FAGU, Climate Change Research Centre, UNSW Sydney
- [1319th Ordinary General Meeting and Open Lecture](#) (Wednesday, 7 February 2024, 6.00 for 6.30–8.00 pm AEDT, Metcalfe Theatre, State Library of New South Wales, Macquarie Street, Sydney), *Productivity: what it is, and why it matters*, Emeritus Professor Roy Green FRSN, Special Innovation Advisor, University of Technology Sydney
- [Annual Meeting of the Four Societies](#) (Wednesday, 21 February 2024, 6.00 for 6.30–8.00 pm AEDT, Metcalfe Theatre, State Library of New South Wales, Macquarie Street, Sydney), *Resilience before Readiness — "... for the want of a horseshoe nail"*, Vince di

Pietro AM CSC FRSN, Independent Consultant, former Commodore, Royal Australian Navy, and former CEO, Lockheed Martin Australia

- [Western NSW Branch Meeting 2024-1](#) (Wednesday, 28 February 6.00 pm AEDT, Wagga Wagga Campus (Riverina Playhouse), Charles Sturt University and live-streaming), *Parasites, Australia's silent threat—coincidence, nature's hand, or policy complacency*, Professor Shookoofeh Shamsi, Professor of Veterinary Parasitology, Gulbali Institute, Charles Sturt University
- [Ideas@theHouse: March 2024](#) (Wednesday, 6 March 2024, 6.30–8.00 pm, Government House Sydney (by invitation) and live streaming), *Shakespeare on politics: what can we learn?* John Bell AO OBE, Founder and Former Artistic Director, Bell Shakespeare

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

News

Society Fellow, Sami Kara, elected as a Fellow of the German National Academy of Science and Engineering

The Council of the Society was delighted to learn that Fellow, Professor Sami Kara FRSN, of the UNSW School of Mechanical and Manufacturing Engineering, was recently elected as a Fellow of the German National Academy of Science and Engineering (ACATECH) for his lifelong contributions to sustainable manufacturing—with reference to the fields of energy and resource efficiency in manufacturing, decarbonisation, the circular economy and industrial symbiosis, reuse and recycling, and life cycle assessment and costing.



Funded by the Federal Government and the States of Germany, ACATECH is the voice of the technological sciences within Germany, providing independent, evidence-based advice on strategic engineering and technology policy issues to policymakers and the public.

At UNSW Sydney, Professor Kara is the founder and director of the Sustainable Manufacturing and Life Cycle Engineering Research Group and is the joint director of the Joint German-Australian Research Group "Sustainable Manufacturing and Life Cycle Management".

The Council of the Society extends its sincere congratulations to Professor Kara on this international recognition of his lifelong contributions to sustainable manufacturing.

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Society Vice-President, Peter Shergold, awarded an Honorary Doctorate by Western Sydney University

Society Fellow and Vice-President, **Emeritus Professor Peter Shergold AC FRSN FASSA**, has been awarded an Honorary Doctorate of Letters by Western Sydney University (WSU). Professor Shergold, who is the Emeritus Chancellor of WSU, was recognised for his outstanding contributions to Australian public life and education during a recent WSU graduation ceremony.

In conferring the award, Vice-Chancellor and President of Western Sydney University, Professor Barney Glover AO FRSN, acknowledged Professor Shergold's achievements and exemplary service, including 12 years as Chancellor of Western Sydney University from 2011–2022. Professor Glover noted that "throughout Professor Shergold's esteemed career, he has made exceptional contributions to public policy and the wider community – working within and outside government on the most complex and challenging issues facing the nation,"



During his career, Professor Shergold served as Secretary of the Commonwealth Department of Employment, Workplace Relations, and Small Business from 1998–2001, the Secretary of the Department of Education, Science, and Training from 2001–2023, and as Secretary of the Department of Prime Minister and Cabinet from 2003–2008 — the most senior role in the Australian Public Service. Since leaving the public service, he has served on numerous corporate and not-for-profit Boards, making outstanding national contributions to policy development and the education sector. He has held many distinguished positions including the current Coordinator General of Refugee Resettlement in NSW, and has been a much-respected advisor to State and Federal Governments, including with David Gonski AC for the 2020 review of the NSW vocational education and training sector, titled 'In the same sentence: Bringing higher and vocational education together'. In 2023, he joined the Council of the Royal Society of NSW as Vice-President.

The Council of the Society extends its sincere congratulations to Professor Shergold on this latest recognition of his outstanding career.

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Society Fellow, Brynn Hibbert, awarded the RACI Leighton Medal

The Council of the Society was delighted to learn that Fellow and former Society President, **Emeritus Professor Brynn Hibbert AM FRSN** of the School of Chemistry at UNSW Sydney, has been awarded the 2023 Royal Australian Chemical Institute Leighton Memorial Medal, which recognises eminent services to chemistry in Australia. Brynn is a retired analytical chemist and the Honorary Dean of Emeriti at UNSW. He served as President of the Royal Society of NSW during the years 2016–17, and in 2018 he became a member of the Order of Australia (AM) for "significant service to science in the discipline of chemistry, to professional societies and to sport through illicit drug profiling".



Professor Hibbert's research focuses on measuring the chemical world, including contributions to naming new elements and the International System of Units through his involvement with the International Union of Pure and Applied Chemistry (IUPAC). He has been recognised for his work as 'high impact' on society by ARC's Excellence in Research for Australia (ERA) assessment 2019. From 1987 until his retirement in 2013, Brynn Hibbert occupied the Chair of Analytical Chemistry at UNSW. For the past 14 years, he has dedicated his time to editing the 2023 edition of the IUPAC Orange Book.

The Council of the Society extends its warm congratulations to our former President, Brynn Hibbert, on this recognition of his lifelong contributions to chemistry in Australia.

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Society Fellow, Muireann Irish, awarded Fellowship of the Australian Social Sciences Academy

The Society was delighted to learn that Society Fellow, **Professor Muireann Irish FRSN FASSA**, an ARC Future Fellow and Professor of Cognitive Neuroscience one the School of Psychology and the Brain and Mind Centre of the University of Sydney, has been inducted as a Fellow of the Academy of Social Sciences in Australia in November 2023.

The Academy citation reads as follows:

Muireann Irish is an expert in the cognitive neuroscience of ageing and dementia. Her innovative research program explores how cognitive processes change across the healthy adult lifespan and break down in neurodegenerative disorders. She is internationally recognised for her landmark studies demonstrating that, in parallel with difficulties remembering the past, people with dementia experience an impaired capacity to envisage the future. By articulating the cognitive and neural mechanisms driving these impairments, Irish's work prompted a paradigm shift in the field and led to the reconsideration of how episodic and semantic memory might work together in synergy. Irish has developed a suite of novel tools to probe these cognitive functions, which are now in use internationally. She has worked closely with aged care providers to translate her research findings into new educational toolkits to improve the care of people living with dementia, both at home and in the residential aged care sector.



The Council of the Society extends its sincere congratulations to Professor Irish on this further recognition of her outstanding research career.

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Society Fellows awarded 2023 NSW Premier's Science and Engineering Prizes

The Royal Society of NSW was delighted to learn that two of its Fellows were named as recipients of the 2023 NSW Premier's Prizes for Science and Engineering, announced at a ceremony held at Government House, Sydney on the evening of Wednesday, 15 November 2024. **Emeritus Professor Trevor McDougall AC FRS FRSN FAA** of UNSW Sydney was named the *2023 NSW Scientist of the Year*, while

Professor Shinichi Nakagawa FRSN, also from UNSW Sydney, was awarded the *Prize for Excellence in the Biological Sciences*. The Society most warmly congratulates both Trevor and Shinichi on their achievements and this recognition of their outstanding research.



Emeritus Professor Trevor McDougall AC FRS FRSN FAA — UNSW Sydney: 2023 NSW Scientist of the Year

Emeritus Professor Trevor McDougall is globally recognised as a leading expert in the field of physical oceanography and is the world's foremost authority on ocean thermodynamics. He has been recognised for his contribution to our understanding of the fundamental physics of the ocean, including how it moves and how it mixes. His ground-breaking research has impacted all of physical oceanography, including observational oceanography and ocean modelling, and he has also transformed the field of ocean thermodynamics.



Trevor's research focuses on the ocean's role in climate, ocean mixing processes and the thermodynamics of seawater. His major discoveries have positioned Australia at the forefront of ocean physics and climate research. His work has improved the modelling of the effects of climate change and has led to the discovery of several new ocean mixing processes and the development of new methods of analysing oceanographic data.

Trevor's theoretical discoveries underlie the adoption of the Temporal Residual Mean parameterisation by ocean and climate models. Widely regarded as the most substantial improvement in ocean modelling since 1985, this breakthrough incorporates the effects of mesoscale ocean eddies in climate models. His dedication to advancing ocean modelling techniques has not only expanded our understanding of the coupled atmosphere-ocean-ice climate system but has also opened new avenues for future research. His contributions to the field of oceanography include leading an international group of researchers in redefining the 30-year-old definition of seawater thermodynamics, and improving the accuracy of the treatment of 'ocean heat content' by a factor of 100.

Professor Shinichi Nakagawa FRSN — UNSW Sydney: Prize for Excellence in the Biological Sciences

Professor Shinichi Nakagawa has made pioneering contributions to the fields of animal behaviour, behavioural ecology, and evolutionary biology, with his research profoundly impacting the transparency and reproducibility of results across, and beyond, the fields of ecology and evolution.

Some highlights from Shinichi's work include describing a novel framework for research synthesis called 'Research Weaving', combining systematic mapping with bibliometrics, and establishing all-new avenues for future research synthesis. He is also a highly active and effective proponent of transparent and reliable science, co-founding the Society for Open, Reliable, and Transparent Ecology and Evolutionary Biology (SORTEE) and the Australian Reproducibility Network (Aus-RN).



Shinichi's work is of immense value to NSW. In pioneering new ways to enhance reproducibility and transparency, he is improving the quality and validity of all ecology and evolution research across the state and beyond. He is a leading voice advocating for best practices in ecology and evolution, attracting over 13,000 mentions in social network media, newspapers, and blogs. His highly influential work has not only introduced statistical methodologies to ecology and evolution but has also added new methods to the field, such as phylogenetic multilevel meta-analysis and effect size statistics comparing variance. His research has appeared in over 330 peer-reviewed journal articles, including Nature, Nature Communications, and Nature Ecology and Evolution. He has an h-index of 79 and his work has attracted over 46,000 citations, with over 33,000 citations since 2018. He has been a Clarivate Highly Cited Researcher every year since 2018.

Paul Jeans FRSN retires as University of Newcastle Chancellor

Paul Jeans FRSN was farewelled in style by town and gown at the “Celebration and Thank You to Our Chancellor” dinner in the Great Hall of the University of Newcastle on 24 November. Serving as Chancellor for the past ten years, Paul will be retiring from his role at the end of 2023.

The speakers paying tribute to Paul were as one in saying what a privilege it was to work with Paul and how his outstanding leadership skills and experience have been immensely valuable to the University. The Chancellor, Vice-Chancellor, and other distinguished guests celebrated Paul’s many achievements and recognised the extraordinary contributions he has made to the University during his tenure.



Paul was appointed as the University’s seventh Chancellor in 2013. Under his leadership, the University has achieved its highest-ever global ranking and has reinforced its place as the sector leader in Indigenous education, with the highest number of Aboriginal and Torres Strait Islander full-time equivalent students for any Australian university. Paul has overseen many game-changing infrastructure investments during his tenure as Chancellor —including NUspace and the Q Building in Newcastle, and the Central Coast Clinical School and Research Institute in Gosford.

The handsome portrait of Paul that will be held in the University Art Collection was painted by Jonathan Dalton an Irish artist who migrated to Australia from Spain in 2013. Dalton has been a finalist in several Archibald Prizes and won prestigious awards from leading Irish art institutions.

The Chair of the Hunter Branch of the Royal Society of New South Wales, Distinguished Emeritus Professor John Aitken, was the MC for the evening. The photograph shows John (far right) with his wife, Rhona Aitken, Paul Jeans, and Susan Pond, President of the Royal Society of NSW. Paul has been generous to the Society with his wisdom and time, including as one of the leading figures in establishing the Hunter Branch.

Events

1318th Ordinary General Meeting and Open Lecture

**What do we really know about
20th- and 21st-century sea-level change?**

**Emeritus Professor John Church AO FAA FTSE
FAMS FAGU**



Climate Change Research Centre UNSW Sydney

Date: Wednesday, 29 November 2023, 6.00 for 6.30 — 8.00 pm AEDT

Venue: Gallery Room, State Library of New South Wales, 1 Shakespeare Place, Sydney

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

Registration: [Registration through Membes](#) is required

Drinks: available from a cash bar in the Friends Room from 6.00 pm

All are welcome

[Please click here to register](#)

Summary: Accelerating sea-level rise in much of the world will result in growing impacts through the 21st century and beyond. Despite the clear identification of an accelerating rise, many uncertainties remain. Understanding historical sea-level change is a prerequisite for building confidence in useful and accurate predictions of future changes.

Our recent work has explored the sensitivity of global and regional sea-level reconstructions to poorly-known land motions and the factors causing temporal and regional variations in the rate of rise. With this knowledge, existing reconstructions of global mean sea level are mostly not significantly different from each other from 1900 to the present, both in the time-averaged rate and the temporal variability. However, while the average rate from 1900 to the present is similar to that from the sum of contributions, the rate of reconstructed GMSL rise is significantly smaller/larger than the sum of contributions prior to 1940 and after 1970. Why is this? What do we really know? What are potential explanations for this continuing enigma?

And what can we project about future sea levels, both for the 21st century and beyond? And can we constrain projections for the 21st century and beyond?

Dr John Church is an Emeritus Professor in the Climate Change Research Centre, University of New South Wales. He has published across a broad range of topics in oceanography. His area of expertise is the role of the ocean in climate, particularly anthropogenic climate change, and the oceanic storage of increased heat in the World's oceans. He is recognised as a world leader in understanding historical and projected global and regional sea-level rise, having provided historical estimates of sea-level change since the late 19th century, robust explanations for the rise, its attribution to greenhouse gas emissions and improved projections of global and regional sea-level rise.

He is the author of over 180 refereed publications and over 110 other reports and has co-edited three books. He was the co-convening lead author for the Chapter on Sea Level in the IPCC Third and Fifth Assessment Reports. His expertise has been recognised nationally and internationally with a number of highly significant awards: the Roger Revelle Medal by the Intergovernmental Oceanographic Commission (2006), a CSIRO Medal for Research Achievement (2006), the Eureka Prize for Scientific Research (2007), the AMOS R.H. Clarke Lecture (2008), the AMOS Morton Medal (2017), a joint winner of the BBVA Frontiers of Knowledge Climate Change Category Prize (2019), the AAS Jaeger Medal (2021), the Royal Society of New South Wales James Cook Medal (2022), and the Prince Albert I Medal of the International Association for Physical Sciences of the Ocean (2023). He is an Officer of the Order of Australia, a Fellow of the Australian Academy of Science, the Australian Academy of Technology and Engineering, the American Geophysical Union, the American Meteorological Society, and the Australian Meteorological and Oceanographic Society.

1319th Ordinary General Meeting and Open Lecture

Productivity: what is it, and why it matters

Emeritus Professor Roy Green FRSN

**Special Innovation Advisor
University of Technology Sydney**



Date: Wednesday, 7 February 2024, 6.00 pm for 6.30 pm AEDT

Venue: Metcalfe Theatre, State Library of NSW, Macquarie Street, Sydney

Registration: [Registration through Membes](#) is required

Drinks: A cash bar will be available in the adjacent Macquarie Room from 6.00 pm

All are welcome

[Please click here to register](#)

Summary: Productivity isn't everything, but in the long run, it's almost everything", Nobel Prize-winning economist Paul Krugman famously said. Productivity is a measure of output per unit of input, and a key determinant of living standards since the Industrial Revolution, but it remains an elusive concept. However defined, productivity growth has slowed across most developed economies, and more so in Australia than anywhere else. In the decade to 2020, average annual productivity growth was the lowest in 60 years at 1.1 per cent, with Australia slipping down the OECD rankings. And last year, productivity actually went backwards.

What are the causes of this decline, both globally and in Australia? Some argue that major industrial transformations have already taken place, and the digital revolution, despite its ubiquitous impact, does not compare with the advent of such things as commercial flight, the telephone, and urban sanitation. Others observe that the digital revolution itself and the rise of the intangible economy make productivity growth difficult or even impossible to measure accurately over time, and hence we should not pay it so much attention.

After much debate, the view taking hold among economists is that most countries have an identifiable cohort of high-value, R&D-intensive firms on the global productivity frontier. The differentiator is the extent to which public policy and institutions are able to facilitate the diffusion of technological change and innovation to the much larger population of firms which would otherwise be productivity 'laggards', pulling down average productivity growth. The challenge is that diffusion is a much slower process than disruptive or breakthrough innovation and requires the development of enterprise 'absorptive capacity'.

Australia does not compare favourably in this context, now ranking 93rd out of 133 countries in the Harvard Atlas of Economic Complexity, which measures the diversity and knowledge intensity of our export mix. In addition, both government and business expenditure on R&D as a share of GDP has fallen behind the OECD average, and far behind global exemplars like Korea, Israel, Sweden, and Japan. In absolute terms, Amazon spends almost ten times more than the entire Commonwealth research and innovation budget. Universities are now having to do much of the heavy lifting, but only as a result of their access to international student revenues.

How did we get here, is this a problem that needs addressing, and, if so, what can we do about it?

Roy Green is an Emeritus Professor and Special Innovation Advisor at the University of Technology Sydney, where he was Dean of the UTS Business School. He graduated with First Class Honours from the University of Adelaide and a PhD in Economics from the University of Cambridge.

Roy has enjoyed a career in universities, government and industry and has published widely in the areas of science, technology and innovation policy, and management education, including projects with the OECD and European Commission.

He has led and participated in numerous public inquiries, as well as chairing bodies such as the Australian Government's Innovative Regions Centre, CSIRO Manufacturing Sector Advisory Council, Food Innovation and Agribusiness Ltd (FIAL) Industry Growth Centre, NSW Manufacturing Industries Advisory Council, and the Queensland Competition Authority. He was also a member of the Prime Minister's Manufacturing Taskforce.

Currently, Roy chairs the Advanced Robotics for Manufacturing (ARM) Hub and the Port of Newcastle, and is a board director of the SmartSat CRC and a member of the Charles Sturt University Council, the University of Newcastle Vice Chancellor's Industry Advisory Board, the Committee for Sydney Economy Advisory Council, and the Australian Design Council. He is also a Fellow of the Royal Society of NSW.

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Annual Meeting of the Four Societies 2024

**Resilience before Readiness —
“... for the want of a horseshoe nail**

Vince Di Pietro AM CSC FRSN

**Independent Consultant and
former Commodore, Royal Australian Navy &
former CEO, Lockheed Martin Australia**



A joint meeting of the Australian Institute of Energy, the Australian Nuclear Association, the Sydney Division of Engineers Australia, and the Royal Society of NSW — organised this year by the Royal Society of NSW.

Date: Wednesday, 21 February 2024, 6.00 pm for 6.30 pm AEDT

Venue: Metcalfe Theatre, State Library of New South Wales (Macquarie Street entrance)

Entry: No charge (with a registration discount code) for members of the four Societies. Non-members: \$20; Students: \$5

Registration: [Registration through Membes](#) is required.

Drinks: A cash bar will be available in the Macquarie Room adjacent to the Metcalfe Theatre from 6.00 pm

All are welcome.

Please register now

Summary: The 2019/2020 Black Summer bushfires devastated significant areas of land and destroyed much property. While the psychological damage continues to be felt by many, the

emergency response and subsequent recovery exposed many shortcomings in our nation's capacity and capabilities. The concurrent emergency of early COVID-19 amplified the shortcomings beyond reasonable doubt. While much of the spotlight is afforded to the readiness possibilities offered by technology and equipment, the essential nature of national resilience needed to underpin preparedness may be in need of closer understanding, analysis, and improvement. Whether discussing high-end military equipment, cyber-attacks on our docks, or regional childcare, are our assumptions correct? Are we investing in success or repeating previous experiences and expecting a different outcome?

Vince Di Pietro is an independent consultant. Vince draws upon 40 years of service in the Royal Australian Navy specialising in aviation, flight training, professional military education, international diplomacy, risk management, certification, and safety. In addition to Command appointments, Vince served twice as a Director-General, as a Naval Attache to the United States, and as Commander of the Fleet Air Arm. On his retirement from the Navy, Vince was appointed Chief Executive Officer of Lockheed Martin Australia and New Zealand until retiring from that position in April 2019. After many moves in Australia and overseas, Vince settled permanently in the Shoalhaven. During and after the Currowan Bushfire, Vince was the Local Recovery Coordinator for the Shoalhaven City Council overseeing the recovery coordination of the damage sustained by 82% of the Shoalhaven's 4600 square kilometers. Having learned much during the fire emergency, Vince designed, coordinated, and implemented the Recovery into Resilience Project in the Shoalhaven. The Project was delivered on time and budget in October 2023 and is now fully operational at 26 Community Information Hubs, powered by solar and battery and connected via satellite internet.



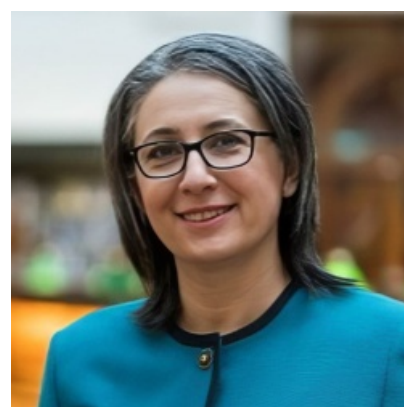
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Western NSW Branch Meeting 2024-1

**Parasites, Australia's silent threat—
coincidence, nature's hand, or policy complacency**

Professor Shookoofeh Shamsi

**Professor of Veterinary Parasitology
Gulbali Institute for Agriculture, Water, and
Environment
Charles Sturt University**



Date: Wednesday, 28 February 2024, 6.00 — 7.00 pm (AEDT)

Venue: Wagga Wagga Campus (Riverina Playhouse), Charles Sturt University and live-streaming

Entry: No charge

Registration: [Registration through Humanitix](#) is required

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 NSW.

Summary: Australia is facing a surge in parasitic incidents that have increasingly captured news headlines: Australia gives up the fight against eradication of bee mites; Oyster farms are under siege from deadly parasites; Native fish fall victim to gut-burrowing invaders, and the country's unique native wildlife faces the deadly threat of cat-borne parasites. Most shockingly, a python worm was recently extracted from a human brain. Despite this growing wave of parasitic challenges, Australia's tendency to downplay their significance is surprising.

This public lecture explores the heart of this enigma, exploring the origins, implications, and possible human factors contributing to Australia's parasitic predicaments. Are these occurrences mere coincidences, driven by the forces of Mother Nature, or do they serve as stark reminders of complacency within the policy-making domain?

Professor Shokoofeh Shamsi has qualifications in veterinary and medical sciences (parasitology) and skills in conventional morphological and molecular parasite identification methods. She is a taxonomist with a huge interest in identifying species, who goes beyond taxonomy to understand parasitism, ecology, evolution, ecosystems, and how parasite populations change in response to anthropological and environmental factors. She is currently leading and collaborating on various research projects focussing on the health, welfare, behaviour, biosecurity, and biology of both wild and farmed, as well as a range of terrestrial and aquatic, animals. Recently, her research focus has broadened to include the culture of indigenous Australians in lessons of sustainability.

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RSNSW 2024 Annual Dinner and Presentation of Awards

Date: Friday, 1 March 2024

Venue and times: Strangers' Room, Parliament House, 6 Macquarie Street, Sydney 6.00–10.00 pm

Registration: \$200 (incl. GST) per person, closing at 5.00 pm on Wednesday, 21 February 2024

Dress: Black tie

Enquiries: By email to [RSNSW Annual Dinner enquiries](#)

All are welcome

This year's Annual Dinner and Presentation of Awards will be held in the Strangers' Room, Parliament House, Sydney. This historic building has recently undergone restoration. The Strangers' Room is the principal dining facility in the Parliament building. It is located beyond the entry foyer and has an outstanding view over the Domain, looking towards Sydney Harbour.

Entrance to the building is via the security gatehouse on Macquarie Street, near the State Library. Security officers will direct you to the building entrance and a staff member will meet you and escort you into the building.

For people who use wheelchairs or with mobility disabilities, there is a ramp and lift access from the Macquarie Street entrance to Reception on level 7.



Royal Society of New South Wales 2024 Annual Dinner and Presentation of Awards

**Strangers' Room, Parliament House, Sydney, NSW
1 March 2024, 6.00–10.00 pm AEST**

Dress: Black Tie

Registration: closes at 5.00 pm on Wednesday, 21 February

General access car parking is not available at Parliament House. Nearby commercial car parks are located at:

- Cook and Phillip Park Pool (access via Cathedral St);
- The Domain Car Park (access via St Mary's Road);
- Sydney Hospital, next door to Parliament House (access via Hospital Road).

People with a current Mobility Parking Scheme Permit attending Parliament House may arrange accessible parking, subject to availability on the day. Requests for accessible parking may be made through the [Disability Car Parking Request Form](#) on the Parliamentary Catering website. Enquiries regarding the availability of disability parking can be made by [email](#).

The after-dinner address will be given by Dr Saul Griffith FRSN. Saul Griffith is an engineer and entrepreneur specialising in clean and renewable energy technologies. Saul has founded a dozen technology companies across 20 years in Silicon Valley. Saul is the author of 3 books including 'Electrify' and 'The Big Switch'. Saul has recently turned his attention from Otherlab, his independent Research and Development company, to policy work and writing, including founding Rewiring America and Rewiring Australia, non-partisan organisations dedicated to electrification and decarbonisation and the associated policy and regulatory implications of meeting our climate goals.

The Society gratefully acknowledges our Gold Sponsor, UNSW Sydney, and our Silver Sponsor, the Quantum Law Group, for supporting this event.

How to register

Do join us to celebrate this event by clicking the button below. Members and non-members are equally welcome. We encourage you to register younger colleagues and colleagues from across New South Wales.

Dietary requirements can be catered for so long as we are informed in advance when registering.

Please register now

All enquiries should be sent by email to [RSNSW Annual Dinner enquiries](#).

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Ideas@theHouse: March 2024



Ideas@theHouse

presented by

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



Shakespeare on politics — what can we learn

John Bell AO OBE

**Founder and Former Artistic Director
Bell Shakespeare**

Date: Wednesday, 6 March 2024, 6.30 – 8.00 pm AEDT

Venue: Face-to-face (by invitation for Society members) and live streaming from Government House Sydney

Registration: Information about registering for a place at Government House will follow

Entry: No charge

All are welcome to the live stream

Summary: John Bell will present a brief survey of the political scenarios in Shakespeare's plays — Tragedies, Histories, and even the Comedies — in the context of these three questions. How do his observations resonate with us now? What can we take from them to confront the dilemmas we face today?

John Bell is the founder of Bell Shakespeare and one of Australia's most acclaimed theatre personalities. In a career of acting and directing, John has been instrumental in shaping the Australian theatre industry as we know it. After graduating from Sydney University in 1962, John worked for the Old Tote Theatre Company, all of Australia's state theatre companies, and was an Associate Artist of the Royal Shakespeare Company in the United Kingdom. As co-founder of Sydney's Nimrod Theatre Company, John presented many productions of landmark Australian plays including David Williamson's *Travelling North*, *The Club*, and *The Removalists*. He also initiated an Australian Shakespeare style with Nimrod productions such as *Much Ado About Nothing* and *Macbeth*.

In 1990 John founded The Bell Shakespeare Company where his productions included *The Winter's Tale*, *Much Ado About Nothing*, *Hamlet*, *Romeo And Juliet*, *The Taming Of The Shrew*,

Richard 3, *Pericles*, *Henry 4*, *Henry 5*, *Julius Caesar*, *Antony And Cleopatra*, *The Comedy Of Errors*, *Wars Of The Roses*, *Measure For Measure*, *Macbeth*, and *As You Like It*, as well as John Webster's *The Duchess Of Malfi*, Goldoni's *The Servant Of Two Masters*, Gogol's *The Government Inspector*, and Ben Jonson's *The Alchemist*. His Shakespeare roles include Hamlet, Shylock, Henry V, Richard III, Macbeth, Malvolio, Berowne, Petruchio, Leontes, Coriolanus, Prospero, King Lear, Titus Andronicus, and Falstaff. He played the title role in co-productions with Queensland Theatre Company including: *Richard 3*, Heiner Müller's *Anatomy Titus Fall Of Rome: A Shakespeare Commentary* and performed the role of Mephistopheles, in *Faustus*. John directed *Tosca* and *Carmen* for Opera Australia, *The Rake's Progress* for the Victorian Opera and has also directed a production of *Madame Butterfly* for an Oz Opera national tour. John performed the role of the Professor in Sydney Theatre Company's production of *Uncle Vanya*, presented in association with Bell Shakespeare which also toured to Washington and New York.

John played the leading role in *The Father* for the Sydney Theatre Company and the Melbourne Theatre Company in late 2017 and directed and starred in *Diplomacy* for Ensemble Theatre in 2018. He toured the country throughout 2018 with Simon Tedeschi in two shows *Enoch Arden* and *Bright Star*. John also appeared in two television series aired in 2019, *Diary Of An Uber Driver* for ABC and *Lambs Of God* for Fox Television. In 2019, John played the title role in Moliere's *The Miser* for Bell Shakespeare. 2021 saw John in the highly successful *Grand Horizons* for Sydney Theatre Company and a welcome return season in 2022 at Sydney Theatre. 2022 had John collaborating with Simon Tedeschi on a number of shows around the country including 'Words And Music' and 'With Love, Amadeus'. John also performed his one-man show on Shakespeare 'One Man In His Time' in Sydney and Melbourne for Bell Shakespeare as well as another one-man show 'A Few Of My Favourite Things' at the Edinburgh Festival. He also featured with the Australian Haydn Ensemble in *Haydn Speaks*. At the end of 2022, John starred in a production of 'A Christmas Carol' for the Ensemble Theatre. 2024 will see John appearing at Blackheath Chamber Music Festival as well as with the Sydney Symphony Orchestra and Umberto Clerici plus further dates planned with Simon Tedeschi.

John Bell is an Officer of the Order of Australia and the Order of the British Empire. He has an Honorary Doctorate of Letters from the Universities of Sydney, New South Wales, and Newcastle. In 1997, the National Trust of Australia named him as one of Australia's Living Treasures. In 2003, the Australia Business Arts Foundation awarded John the Dame Elisabeth Murdoch Cultural Leadership Award. His many awards as an actor and director include the Helpmann Award for Best Actor and Best Supporting Actor (*Richard 3*, 2002 & *Jaques* in *As you Like It*, 2015) and nominated for Best Support Actor and Best Actor (*Uncle Vanya*, 2011 and *The Father*, 2017), a Producers and Directors Guild Award for Lifetime Achievement and the JC Williamson Award (2009) for extraordinary contribution to Australia's live entertainment industry, and the 2010 Sydney Theatre Award for Lifetime Achievement in recognition of his extraordinary career as an actor, director, and producer. John is the founder and chair of The Bouddi Foundation for the Arts, based on the NSW Central Coast, dedicated to supporting young artists of all genres.

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Branch and Committee Reports

Program Committee Report

The Society provides an active program of events through its 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 recent events held in Sydney.

Report on the 8 November 2023 event held in Sydney

Following the 1317th OGM, held in the Metcalfe Auditorium of the State Library on Wednesday 8 November, Professor Andy Baker presented the 2022 Clarke Memorial Lecture titled [*Caves as observatories of groundwater recharge*](#).



Andy Baker, from the School of Biological, Earth, and Environmental Sciences at UNSW Sydney, spoke to his and others' intensive work investigating the movement of post-rain event water through the infiltration zone of soils and fractured rocks and into caves, en route to groundwater aquifers. He spoke to the significance of this research given the important role that groundwater aquifers play in providing water for the replenishment of natural habitats, rivers, and wetlands, as well as for drinking and agriculture.

Andy presented a detailed collation and analysis of many years of stalactite drip data from limestone cave sites largely in eastern Australia. His data and that of other researchers demonstrated the requirement for quite extensive rainfall over a catchment area before significant water “flow” was manifest in stalactite drips. By extension, this research data bore witness to the impact of climate change on aquifer replenishment.

His lecture was well received by a very engaged audience who asked many questions until the bell for the closure of the Library forced an end to proceedings! Andy is now seeking to extend beyond cave-based research to the collection of data in mines and tunnels and is actively seeking recommendations as to possible sites from his audience and members.

A recording of this event is [available on YouTube](#).

Elizabeth Deane FRSN
Secretary, RSNSW Program Committee

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Hunter Branch Report

Presentation Report — 26 October 2023

**Electrical energy supply:
so what's all the fuss about?**

Professor Colin Waters

**Professor of Physics
University of Newcastle**

New Member

Before commencing the public lecture at the recent ordinary general meeting of the Hunter Branch on 26 October 2023, the Chair of the Hunter Branch, Distinguished Emeritus Laureate Professor John Aitken FRSE FRSN FAHMS FAA, was able to present Mr Ed Matzenik with his RSNSW certificate of membership and welcome him to the Hunter Branch. Mr Matzenik is a musician and renowned showman in the Hunter region.



Public Lecture ‘Electrical energy supply: so, what’s all the fuss about?’

Those in attendance were treated to an informative and enlightening lecture by Professor Colin Waters, an internationally renowned physicist at the University of Newcastle.



Professor Waters challenged the audience to think of what life would be like today without electricity. He then highlighted the nature of energy, its various forms, and its availability. In presenting the options and challenges associated with the conversion of energy to electricity, he reminded the audience that the cost of storing energy and transforming it to electricity needed to consider all the activities and processes involved. In considering the way forward to meet the world's energy needs with electricity, he noted that careful analysis of issues such as energy density or the availability of energy in its various forms, and the economic costs and environmental (dirt to dirt) impact in sourcing electrical energy had to be factored into the choices being made. He alerted the audience to misleading information in the press and social media and highlighted the need for the community to access reputable data-based sources regarding energy availability, utilisation, costs, and options whether considering the installation of photovoltaic and battery systems for private properties, or more broadly when considering and debating the nation's options in achieving a sustainable future for all.

An engaging question-and-answer session followed Professor Waters' lecture.

Hunter Branch Invitation

The Hunter Branch is currently finalising arrangements for its 2024 program of events and looks forward to members of the Society and their friends joining the Hunter Branch for Society events during 2024.

Philip Bolton

Secretary, Hunter Branch

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Southern Highlands Branch Report

Presentation Report — 16 November 2023

Secrets of cultural heritage revealed at ANSTO

Dr Joseph Bevitt

Senior Instrument Scientist

Much of this wonderful lecture by Dr Joseph Bevitt brought back vivid memories for visitors of *The Invisible Revealed* exhibition which recently showcased groundbreaking work presented through a partnership between the Powerhouse Museum and the Australian Nuclear Science and Technology Organisation (ANSTO). The amazing



discoveries presented in this lecture depended on the ANSTO state-of-the-art neutron beam and its Melbourne-based synchrotron X-ray facilities, in association with the Expanded Perception and Interaction Centre UNSW. ANSTO won a national award for this extraordinary exhibition.

ANSTO strongly supports cultural heritage in Australia and around the world. Bevitt described how many of the analytical processes in these studies rely on the fact that neutron studies and X-ray studies are complementary, delivering a holistic view that cannot be achieved by either method on its own. The advanced nuclear and accelerator techniques are non-destructive, penetrating, and exquisitely sensitive for use on priceless cultural heritage objects.

One of the many treasures of cultural heritage discussed by Joseph was an ancient Lydian Stator coin. This coin, purchased by the Powerhouse Museum, is one of the oldest coins in the world, believed to be one of only four in existence. It was made in the kingdom state of Lydia, the first nation in the world to produce its own official coinage. This coin was purchased very cheaply because it was thought there may be a possibility that it was a forgery made of tungsten, which has the same density as gold, and then clad in gold to make it appear genuine. Neutron analysis was able to show that there was no central ingot of tungsten. The ingot in fact was made of a gold and 6% silver mix.

Joseph Bevitt drove to the Mittagong RSL to deliver this lecture, en route to ANSTO's Synchrotron based in Melbourne. He added that the boot of his car housed a precious specimen that he was taking to Melbourne for further studies. Unfortunately, it was too large to bring into the building!

Anne Wood FRSN

Chair, Southern Highlands Branch

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Western NSW Branch Report

Event Report

In conjunction with the Western NSW Branch of the Royal Society of New South Wales, Charles Sturt University is conducting its Provocations Public Lecture series that showcases and celebrates research at the University.

2023 Program

The final event in the Provocations Public Lecture series for 2023, titled [*Thirst for power — The Rivers of conflict in Southeast Asia*](#), was presented by **Professor Lee Baumgartner**, Executive Director of the Gulbali Institute for Agriculture, Water and Environment, at the Charles Sturt University Albury Campus on Thursday, 16 November (6.00 pm AEDT). A recording of this presentation is now [available on the Society's YouTube channel](#).



Forthcoming Events

A program of six lectures in the Provocations series is planned for 2024. These will be live-streaming and recorded for subsequent availability on the Society's YouTube channel. These are:

- [Parasites, Australia's silent threat - Coincidence, nature's hand, or policy complacency?](#), Professor Shokoofeh Shamsi, Charles Sturt University, Wagga Wagga Campus, Wednesday, 28 February 2024, 6.00 pm AEDT
- Topic: TBA, Professor Alan Cooper, Charles Sturt University, Albury Campus, Wednesday, 10 April 2024, 6.00 pm AEST
- Topic: TBA, Professor Muhammad Shiddiky, Charles Sturt University, Orange Campus, Wednesday, 26 June 2024, 6.00 pm AEST
- Adapting to change — Invasive plants and pests take up the challenge, Professor Leslie Weston, Charles Sturt University, Wagga Wagga Campus, Wednesday, 28 August 2024, 6.00 pm AEDT
- Topic: TBA, Professor Sarah O'Shea, Charles Sturt University, Dubbo Campus, Wednesday, 23 October 2024, 6.00 pm AEST
- Topic: TBA, Professor Allen Ross, Charles Sturt University, Orange Campus, Wednesday, 5 November 2024, 6.00 pm AEDT

Nilima Mathai
Treasurer
Western NSW Branch

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The Society and Social Media

The Society's presence on social media platforms is growing strongly, particularly following the appointment of the Society's part-time Communications Officer. Our [Facebook page](#), [LinkedIn channel](#), [X/Twitter feed](#), and [YouTube channel](#) are engaging an increased following, and we continue to build our repository of events on YouTube. Our YouTube channel now has 700 subscribers, while the almost 140 videos online have received over 82,000 viewings.

The social media icons at the end of this newsletter 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 so.

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 [Presentations](#) page of the RSNSW website.

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 presentation at the Western NSW Branch Meeting 2023-4 (16 November) on the subject of *Thirst for power — the rivers of conflict in Southeast Asia*, by Professor Lee Baumgartner, Executive Director of the Gulbali Institute for Agriculture, Water, and Environment at Charles Sturt University. A summary of the session and a brief biography of each of the presenters are available from the [online event notice](#).



YouTube recording of the presentation at the 1317th Ordinary General Meeting and 2022 Clarke Memorial Lecture (8 November) on the subject of *Caves as observatories of groundwater recharge*, by Professor Andy Baker from the School of Biological, Earth, and

Environmental Sciences of UNSW Sydney. A summary of the session and a brief biography of each of the presenters are available from the [online event notice](#).



YouTube recording of the opening session of the 2024 Royal Society of NSW and Learned Academies Forum with the theme of *Our 21st Century Brain*, held at Government House Sydney on 2 November 2024. A summary of the Forum, together with a brochure containing the program and biographies of presenters, is available from the [online event notice](#). The complete set of six recordings of the day's sessions is available from the [YouTube playlist](#).



YouTube recording of the presentation at the joint UNE SRI and RSNSW Presentation held in Armidale (30 October 2023) on the subject of *Electrification and Opportunities for Community and Business*, presented by Professor Renate Egan, Executive Director of the Australian Centre for Photovoltaics at UNSW Sydney. A summary of the session and a brief biography of each of the presenters are available from the [online event notice](#).



YouTube recording of the presentation at the 1316th Ordinary General Meeting (4 October 2023) on the subject of *Australia's nuclear future: A new discourse for the 2040s*, by Helen Cook, Principal of GNE Advisory and Dr Adi Paterson, former CEO of ANSTO. A summary of the session and a brief biography of each of the presenters are available from the [online event notice](#).



YouTube recording of the presentation at the 1315th Ordinary General Meeting (6 September 2023) on the subject of *Challenges for open enquiry and scholarship in a divided age*, presented by Professor Alan Davison, Dean of the Faculty of Arts and Social Sciences at the University of Technology Sydney. A summary of the session and a brief biography of each of the presenters are available from the [online event notice](#).

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

Disclaimer: Positions expressed in this publication by authors of articles and event presenters do not necessarily reflect those of the Society.

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