



THE BULLETIN 451

THE ROYAL SOCIETY OF NEW SOUTH WALES

ABN 76 470 896 415

ISSN 1039-1843

MAY 2021

For Your Diary

- 02 JUN
[1294th OGM and Open Lecture](#)
- 07 JUL
[1295th OGM and Open Lecture](#)
- 22 JUL
[Ideas@theHouse: Music as a Superfood](#)
- 04 Nov
[RSNSW and Learned Academies Forum 2021](#)



Patron of The Royal Society of NSW

Her Excellency The Honourable
Margaret Beazley AC QC
Governor of New South Wales

1293RD OGM AND OPEN LECTURE

Big, bad fires in NSW

Wednesday, 5 May 2021, 6:30 PM



**Emerita Professor Mary O'Kane AC FRSN FTSE
Hon FIEAust**

Chair, NSW Independent Planning Commission

Date/time: Wednesday 5 May 2021, 6:30 PM

Venue: [Zoom Webinar](#)

Entry: No charge

Enquiries: [via email](#)

All are welcome.

See [page 4](#) for more information

From the President

It is my great privilege to be elected as President of the Royal Society of NSW. Thank you to the many who have welcomed me so warmly. I look forward to meeting more and more members in the coming months. You are a collection of inspiring individuals committed to using your influence to create a better world. It is an honour for me to be part of the Society, and even more so as President.

I begin my first President's column by acknowledging the Past Presidents of the Society, many of whom remain active members today. I also acknowledge my fellow Councillors and Committee members.



I particularly want to pay tribute to our immediate Past President, Ian Sloan, for his fine leadership over the last three years and his steady resolve during 2020, amidst the turbulence of the pandemic. Pleasingly, Ian will remain on Council as Past President for the next year — our bicentennial year which begins in June. We will be celebrating the first 200 years of our Society's history while creating new chapters that will be written about in years to come.

Throughout my career, as I transitioned from academia to industry and back, I greatly enjoyed creating impact by combining and working at the intersections of disciplines. The unique strength of our Society is the mix of depth and breadth of expertise of our membership, and of far-reaching personal vision combined with big picture thinking.

It is more important than ever for the Society to be ambitious in its thinking and outward in its vision. As President I propose to amplify the energy and firepower of our entire membership so that together we can better contribute, as an independent and authoritative voice, to the advancement of knowledge and informed debate on critical challenges and transitions. By way of example, this year's RSNSW and Learned Academies Forum on the 4th of November will tackle the topic 'Power and Peril of the Digital Age'.

I want to capture and retain our innovations that were successful during the pandemic, especially the extension of our outreach beyond Sydney and NSW through on-line events. That said, I also want our events to return to being held live as soon as practicable. Face-to-face meetings will be more important than ever for building stronger bonds between us, generating and debating new ideas, and facilitating a more natural flow of conversation.

With live meetings in mind, small and large, I intend to work hard to secure dedicated premises in Sydney to give the Society the permanence, stability, and presence we need to take our renaissance to the next level.

(continued overleaf)

From the President (continued)

I also intend to bring people from all sorts of backgrounds and from different regions into the Society so that it reflects the communities we serve. We have begun discussions about establishing a branch in Western NSW, having seen the success of the Southern Highlands and Hunter Branches. The Society will only be successful if you, the members, are prepared to offer your time, energy and expertise. Please come forward if you are interested in contributing to our success!

Susan M Pond AM FRSN FTSE FAHMS
President, Royal Society of NSW

His Royal Highness The Prince Philip, Duke of Edinburgh

Message of Condolence from The Royal Society of New South Wales

The Officers, Fellows, and Members of the Royal Society of New South Wales have been deeply saddened to hear of the death of HRH Prince Philip, the Duke of Edinburgh.

We are conscious of the keen interest that His Royal Highness showed in science and technology throughout his life. We admire the spirit of innovation that he embraced across many fields of life and endeavour.

We are fondly reminded of his visit to Sydney, during 1940, as a young naval officer aboard HMS Ramillies. We welcomed his continuing interest in Australia, which grew through the twenty-two times he later came, over a period of 72 years, as a Royal visitor.

We are sure that he will be remembered with warmth and affection by all those who had the opportunity to see and to meet him during his visits and wish to record our acknowledgment and appreciation of his continuing interest in the future of Australia.

Through Her Excellency, the Governor of New South Wales, we wish to send our deepest admiration and sincere condolences to Her Majesty the Queen and the Royal Family.

Dr. Susan M Pond, AM FRSN
President, Royal Society of New South Wales
17 April 2021



Portrait by Allan Warren

1293rd OGM and Open Lecture

Big, bad fires in NSW

Emerita Professor Mary O’Kane AC FRSN FTSE Hon FIEAust
Chair, NSW Independent Planning Commission

Date: Wednesday 5 May 2021, 6:30 PM

Venue: [Zoom Webinar](#) ([Obtain help in getting started with Zoom](#))

Entry: No charge

Enquiries: [via email](#)

All are welcome.



As noted in the NSW Bushfire Inquiry, ‘The 2019–20 bush fire season was extreme, and extremely unusual. It showed us bush fires through forested regions on a scale that we have not seen in Australia in recorded history, and fire behaviour that took even experienced firefighters by surprise. The total tally of fire-generated thunderstorms in south-eastern Australia since the early 1980s increased from 60 at the end of 2018–19 to almost 90 at the end of the 2019–20 bush fire season — an increase of almost 50% in one bush fire season. Fire-generated thunderstorms are extremely dangerous phenomena that produce extreme winds, lightning, tornadoes, and black hail. The season showed us what damage megafires can do, and how dangerous they can be for communities and firefighters. And it is clear that we should expect fire seasons like 2019–20, or potentially worse, to happen again.’

This talk will examine the nature of the 2019–20 bushfires, why they were so extreme, and why they are likely to happen again.

About the speaker

Mary O’Kane is Chair of the NSW Independent Planning Commission, a company director, and Executive Chairman of O’Kane Associates, a company advising governments and the private sector on innovation, research, education and development. She was NSW Chief Scientist & Engineer from 2008–2018; Vice-Chancellor of the University of Adelaide from 1996–2001 and Deputy Vice-Chancellor (Research) at Adelaide from 1994–1996. Before that, she was Dean of Information Sciences and Engineering at the University of Canberra.

Mary has served on several boards and committees in the public and private sectors, especially related to energy, engineering, ICT and research. She is currently Chair of the boards of Aurora Energy Pty. Ltd. and Sydney Health Partners. She also carries out reviews in a wide range of fields in many countries. She recently was one of the two leaders of NSW Bushfire Inquiry.

Professor O’Kane is a Companion of the Order of Australia, a Fellow of the Australian Academy of Technology and Engineering, an Honorary Fellow of Engineers Australia, a Fellow of the Royal Society of NSW and the recipient of the 2020 Royal Society of NSW Medal.

RSNSW Council Elections 2021: Declaration of Results

by Wendy Enevoldsen (Returning Officer)

The electronic ballot for the 2021 Council Elections of the Royal Society of NSW closed at noon on Tuesday, 6 April 2021. There were 260 ballots submitted by 586 eligible voters, representing an overall return of 44.3%.

The outcome of the election is as follows.



Council Elections 2021 Declaration of Results

For President

There were 256 votes tallied with 4 abstentions from 260 ballots received.

Dr Susan Pond AM FRSN FTSE FAHMS is elected to a 2-year term as President with 157 votes.

For Past President

Under Rule 16(d) of the Society, **Emeritus Professor Ian Sloan AO FRSN FAA** is appointed to a 1-year term as immediate Past President.

For Vice-President

There were 253 votes tallied with 7 abstentions from 260 ballots received. **Ms Judith Wheeldon AM FRSN** is elected to a 2-year term as Vice-President with 145 votes.

For the election of eight (8) Council members

Under Rule 18(b) of the Society, the four (4) candidates with the greatest number of votes are elected for a two-year term, with the next four candidates being elected for a one-year term. There were 1968 votes tallied with 14 abstentions from 260 ballots received.

Councillors, in alphabetical order, elected for a *two-year term* are:

- **Professor Katherine Belov AO FRSN** with 206 votes
- **Dr Davina Jackson FRSN** with 159 votes
- **Ms Virginia Judge FRSN** with 177 votes
- **Emeritus Professor Christina Slade FRSN** with 174 votes

Councillors in alphabetical order elected for a *one-year term* are:

- **Ms Pamela Griffith FRSN** with 158 votes
- **Dr Donald Hector AM FRSN** with 151 votes
- **Professor Eric Knight FRSN** with 148 votes
- **Emeritus Professor Robert Marks FRSN** with 143 votes

Other Office-bearers

Only a single nomination was received for the following four office-bearer positions and so these are declared elected for a two-year term without the need for a ballot:

- Secretary: **Mr Bruce Ramage MRSN**
- Treasurer: **Mr John Cameron MRSN**
- Librarian: **Mr John Hardie FRSN**
- Webmaster: **Emeritus Professor Lindsay Botten FRSN**

Report from Council

by Lindsay Botten (Webmaster)

The most recent meeting of the Society's Council was held on Wednesday, 17 March 2021.

Citation

Members were advised that the retiring Treasurer Mr Richard Wilmott had been awarded a Royal Society of New South Wales Citation for his significant contribution to the financial affairs of the Society. The President thanked Mr Wilmott for his exemplary service to the Society.

Diversity and Inclusion Policy

It was noted, as required by the policy, that Council had accepted the review by the Executive Committee and approved the revised [Diversity and Inclusion Policy](#).

Terms of reference for Council committees

Members noted that Council had approved the revised [terms of reference](#) for each of its committees which were now on the Society's website.

Annual report

Members noted that Council had adopted the [Annual Report and Financial Statements for 2020](#).

Annual Forum

It was noted that Council had endorsed the addition of the Australian Academy of Health and Medical Sciences to the learned academy partners of the Annual Forum. The 2021 Annual Forum would be held on 4 November 2021 with the title *Power and Peril of the Digital Age*.

Journal & Proceedings of the Royal Society of New South Wales

by Robert Marks (Editor)

Over the past six years, I have published abstracts (with URLs) from 69 PhD dissertations by recent graduates of universities in NSW and the ACT. These are nominated by the universities awarding the degrees. In the current issue there are three abstracts by First Nations graduates — Dr Terri Janke from the ANU, Dr Jonathan Jones from UTS, and Dr Graeme La Macchia from the Australian Catholic University — a first for the *Journal*. Dr La Macchia has donated a bound copy of his thesis, 'Big Gubba Business: The making of the United Nations Declaration of the Rights of Indigenous Peoples, First Nations resurgence and the Australian connection,' to the Society's library collection.



Journal and Proceedings

of the

Royal Society
of
New South Wales

"...for the encouragement of studies and investigations in Science, Art, Literature and Philosophy."

Southern Highlands Branch April Lecture

Particle Radiation Therapy and Human Space Exploration: commonality in challenges and solutions

Distinguished Professor Anatoly B. Rosenfeld

Date: Thursday 15 April 2021, 6:30 PM

Venue: RSL Mittagong, Nattai/Joadja Rooms (face-to-face)

About the speaker

Professor Anatoly Rosenfeld is the Founder and Director of the Centre for Medical Radiation Physics (CMRP) at UOW. This is the largest education and research multidisciplinary radiation physics centre in the Asia-Pacific. It provides for 18 academics and post-doctoral researchers, 20 adjunct fellows from hospitals and industry and more than 65 post-graduate students. Anatoly has published more than 400 peer reviewed papers and holds 19 granted patents in the field of radiation detectors for medical and space applications. Two of his inventions have been commercialised.



The event

Anatoly described the improved treatments of using particle therapy for the treatment of solid tumours, rather than the conventional therapy with electron and X-ray beams. Heavy ions have marked advantages over protons and lighter ions in treating deep-seated radio-resistant tumours. Our better understanding of the radiobiology of heavy ions led recently to multi-ion therapy opening new horizons in better cancer treatment. While this heavy ion radiation is efficiently killing cancer, it is a major obstacle for human space exploration. Astronauts suffer increased risks of cancer through space radiation in comparison with the terrestrial radiation environment. Risk prediction in space radiation environments is challenging due to the mixed particle radiation field, where charged particles of high energy and charge in galactic cosmic rays as well as protons from solar particle events must be considered.

This was an outstanding lecture addressing innovations in heavy ion treatment of cancer, as well as radiation challenges in space exploration for future Moon and Mars human missions. The Centre for Medical Radiation Physics at UOW is a world leader in the development of radiation sensors. In addition, research and educational programmes developed by Professor Rosenfeld at CMRP were recently recognised as being 'above world standard' by the Australian Research Council — Excellence in Research for Australia (ERA) in 2015 and 2018.

Report: Events Committee

by Christina Slade (Chair of Events) and Lindsay Botten (Webmaster)

Since the publication of the Events Committee report in the March Bulletin, there have been a number of events conducted by the Society.

The 1292nd Ordinary General Meeting included an address by the contemporary artist, [Lea Kannar-Lichtenberger](#), on the evening of 7 April, while the conversation with renowned author and Distinguished Fellow of the Society, [Thomas Keneally AO DistFRSN](#) — the second in the Ideas@theHouse event — was held on the evening of 15 April.

Lea Kannar-Lichtenberger discussed '[Antarctica, this ain't no mirage: the value of art in disseminating scientific information](#)', while Thomas Keneally, in conversation with Vice-President Judith Wheeldon, addressed the theme of his most recent book in '[Australia and the Dickens Boys](#)'. These are now available on our [YouTube channel](#).

Southern Highlands Branch

On 15 April, Professor Anatoly Rosenfeld from the University of Wollongong addressed the society on '[Particle radiation therapy and human space exploration: commonality in challenges and solutions](#)'.

Hunter Branch

The planned presentation by Dr Alan Finkel AO FTSE FAA, former Chief Scientist of Australia, on '[... readying our region for low emissions technology](#)', as a joint University of Newcastle and Royal Society of NSW meeting, on 23 March was unfortunately postponed due to an extreme weather event on the mid-north coast NSW preventing the arrival of the speaker. On 31 March, the Hunter Branch held its first Annual General Meeting.

Future events are listed on the website at [Upcoming Events](#).

RSNSW Fellows recognised in Australian Academy of Science Awards

Two Royal Society of NSW Fellows have recently received Australian Academy of Science (AAS) Honorific Awards, announced in March 2021. They are:

- Professor Thomas Maschmeyer FRSN FAA FTSE who was awarded the David Craig Medal and Lecture — one of the AAS Career Honorifics
- Professor Angela Moles FRSN who was awarded the Nancy Millis Medal for Women in Science — one of the AAS mid-Career Honorifics.



The Council of the Society most warmly congratulates Professor Maschmeyer and Professor Moles on this recognition of their outstanding research achievements.

Welcome to new members

The Society is pleased to welcome the following new members to the Society. They were elected at the Ordinary General Meeting held on 7 April 2021. We hope that each of you enjoys your membership and is able to participate in all that the Society has to offer.

Members

- Mr Andrew Buttfield
- Mrs Josephine Buttfield

The Society and social media

The Society's presence on social media platforms is slowly but surely growing. Our [Facebook page](#) and [YouTube channel](#) continue to attract and engage followers and viewers, and we continue to build a repository of online events conducted recently on YouTube.

The icons on the right will take the reader to the platforms' respective pages, from where they can follow and subscribe to the Society, and be notified of new content.



While the music lasts

Date: Thursday 22 May 2021, 8:00 PM

Venue: Sir John Clancy Auditorium, UNSW
Sydney, Kensington campus

Tickets: <https://www.music.unsw.edu.au/australia-ensemble-unsw/2021-season-fresh-start/australia-ensemble-unsw-subscription-concert-while>

Australia Ensemble UNSW brings to life *While the music lasts* to remind us that music is a universal element of humanity that can take us 'out of time'.

The program features music by Osvaldo Golijov, Mélanie Hélène Bonis, Gordon Kerry and Gabriel Fauré, and stars guest artists Lisa Osmialowski (flute) and Andrew Meisel (double bass).

For more information, and to book tickets, please visit [Australia Ensemble UNSW Subscription Concert: While the music lasts](#).



List of proposed events for 2021

Kindly note that this is a provisional list and will be subject to change. Updates will be reflected in future issues of the Bulletin and on [our website](#).

Date	Event
Wednesday, 5 May 6:30 PM AEST	1293 rd Ordinary General Meeting and Open Lecture Big, bad fires in NSW Emerita Professor Mary O'Kane AC FRSN FTSE HonFIEAust
Thursday, 20 May 6:30 PM AEST	(Southern Highlands Branch) Burnout — the hottest issue Professor Gordon Parker
Wednesday, 2 June 6:30 PM AEST	1294 th Ordinary General Meeting and Open Lecture Murray-Darling Basin turmoil: past, present and future Professor Richard Kingsford FRSN
Thursday, 17 June 6:30 PM AEST	(Southern Highlands Branch) Nuclear Fusion — exact topic t.b.a. Max La Galle
Wednesday, 30 June	(Hunter Branch) Lecture — exact topic t.b.a. Prof Jason Sharples, UNSW, Canberra Director of the Bushfire and Natural Hazards CRC
Wednesday, 7 July 6:30 PM AEST	1295 th Ordinary General Meeting and Open Lecture Society as an information-processing system, and the influence of the media Dr Erik Aslaksen FRSN
Thursday, 15 July 6:30 PM AEST	(Southern Highlands Branch) Neutron scattering and the WOMBAT project Dr Helen Maynard-Casely
Thursday, 22 July 6:30 PM AEST	Ideas@theHouse: 'Music as a Superfood: How music can help us live longer, sleep better, calm down, find flow, and feel happier' Greta J. Bradman
Wednesday 4 August 6:30 PM AEST	1296 th Ordinary General Meeting and Open Lecture Towards a Modern History of Gondwanaland Professor Alison Bashford FRSN FAHA FBA FRHistS, UNSW

(continued overleaf)

List of proposed events for 2021 (continued)

Date	Event
Wednesday 25 August	(Hunter Branch) Lecture — Royal Commission for Ageing and the care and welfare of the elderly Prof Kathy Eagar, University of Wollongong
Wednesday, 1 September 6:30 PM AEST	1297 th Ordinary General Meeting and Open Lecture Taking humour and laughter seriously: Exploring the multi-disciplinary field of humour studies Dr Jessica Milner Davis FRSN
Wednesday, 29 September	(Hunter Branch) Lecture — exact topic t.b.a. Nathan Towney, University of Newcastle
Wednesday, 6 October 6:30 PM AEDT	1298 th Ordinary General Meeting and Open Lecture Ethics, regulation and AI (to be confirmed) Professor Toby Walsh, Laureate and Scientia Professor, FRSN FAAS FACM FAAAAS FEAAI; Sarah Court, Commissioner Australian Competition and Consumer Commission
Thursday, 4 November 9:00 AM–4:30 PM AEDT	Royal Society of NSW and Learned Academies Annual Forum Power and Peril of the Digital Age Venue: Government House, Sydney, Live Streaming and subsequent availability on YouTube
Wednesday 10 November 6:30 PM AEDT	1299 th Ordinary General Meeting and Open Lecture Topic: To be announced Speakers: To be confirmed
Wednesday 1 December 6:30 PM AEDT	1300 th Ordinary General Meeting and Open Lecture Managing Psychological Distress in Times of Stress: Handling the Stress of COVID-19 and All That Scientia Professor Richard Bryant AC FASSA FAA FAHMS — James Cook Medal Winner 2020

Current Council and Office-Bearers

The current Council and office-bearers of the Society are:

Patron	Her Excellency The Honourable Margaret Beazley AC QC, Governor of New South Wales
President	<u>Dr Susan Pond AM FRSN FTSE FAHMS</u>
Vice-President	<u>Ms Judith Wheeldon AM FRSN</u>
Past President	<u>Emeritus Professor Ian Sloan AO FRSN FAA</u>
Secretary	<u>Mr Bruce Ramage MRSN</u>
Treasurer	<u>Mr John Cameron MRSN</u>
Librarian	<u>Mr John Hardie FRSN</u>
Webmaster	<u>Emeritus Professor Lindsay Botten FRSN</u>
Councillors	<u>Professor Katherine Belov AO FRSN</u> <u>Ms Pamela Griffith FRSN</u> <u>Dr Donald Hector AM FRSN</u> <u>Dr Davina Jackson FRSN</u> <u>The Hon. Virginia Judge FRSN</u> <u>Professor Eric Knight FRSN</u> <u>Emeritus Professor Robert Marks FRSN</u> <u>Emerita Professor Christina Slade FRSN</u>
Hunter Branch Representative	<u>Professor George Willis FRSN FAA</u>
Southern Highlands Branch Representative	<u>Mr Mike Jonas MRSN</u>

Editor: [Jason Antony](#)

