



**THE
ROYAL SOCIETY
OF NEW SOUTH WALES**

ENRICHING LIVES THROUGH KNOWLEDGE SINCE 1821

Minutes of the 1302nd Ordinary General Meeting of The Royal Society of New South Wales held in the Gallery Room, State Library of New South Wales on Wednesday 6 April 2022 at 6.15PM.

There were 52 Members, Fellows and guests in attendance.

The meeting was conducted out of agenda order.

1. WELCOME

The President, Dr Susan Pond AM FRSN presided at the meeting which immediately followed the 155th Annual General Meeting.

1.1 Minutes of the 1301st Ordinary General Meeting held on 2 March 2022

The Minutes of the previous Ordinary General Meeting, previously circulated, were approved.

2. CONFIRMATION OF MEMBERSHIP

As no valid objection was lodged within two weeks following the 1301st Ordinary General Meeting, the election of the following new Fellows, Members and Associate Members took effect from the date of that meeting held on 2 March 2022.

2.1 Fellows

Professor Igor Aharonovich
Professor Clive Baldock
Professor Anthony Cunningham
Professor Roy Green
Professor Renee Elmina Leon
Dr Tuan Van Nguyen
Dr James Renwick
Professor Shawn Ross

2.2 Members

Dr Holly Eva Katherine Randell-Moon
Dr Diana Wyndham

2.3 Associate Members

Mr Cory Thomas

3 PRESENTATION OF AWARDS

- 3.1** The President presented the Royal Society of New South Wales Medal for 2020 to Professor Emerita Mary O’Kane AC and read the following citation.

‘Emerita Professor Mary O’Kane was appointed as the first New South Wales Chief Scientist and Engineer. Prior to that she was Deputy Vice-Chancellor (Research) and then Vice-Chancellor and President of the University of Adelaide.

As the New South Wales Chief Scientist and Engineer, she established a relationship between her office and the Royal Society of New South Wales which, in essence, provided the Society with access to the State Government. She advocated for the Society in government and also was a strong supporter of the Royal Society of New South Wales and Four Academies Forum held annually at Government House, Sydney.’

- 3.2** The President presented the History and Philosophy of Science Medal for 2021 to Professor Dean Rickles and read the following citation.

‘Professor Rickles has made seminal contributions to both the history and the philosophy of modern physics, creating two-way traffic from conceptual and philosophical issues to historical ones. His work has been used and praised by philosophers, historians, and physicists alike. In particular, he has been a central figure in the emerging field of history and philosophy of quantum gravity, the as yet unknown theory that would treat our two great fundamental theories of physics, general relativity and quantum theory, in a single framework, and has driven much of the current research landscape.’

4 ANNOUNCEMENT OF NAMES OF CANDIDATES FOR FELLOWSHIP AND MEMBERSHIP

4.1 Members

If no objections are received from members within two weeks of this meeting, that is, by 6.30pm on Wednesday 20 April 2022, the election of the following new Member will take effect from the date of this meeting, 6 April 2022.

Mr Jeffrey Styles

5 REPORT FROM COUNCIL AND COMMITTEES OF COUNCIL

The President said that at its 16 March 2022 meeting, the Council acknowledged the contributions made by three retiring Councillors: Emeritus Professor Ian Sloan, Dr Donald Hector and Professor Eric Knight.

6 QUESTIONS

There were no questions.

7 THIS EVENING'S PRESENTATION

NEW FRONTIERS IN SMART SENSOR TECHNOLOGY FOR A HEALTHIER, SAFER AND SUSTAINABLE FUTURE

Professor Benjamin Eggleton, Director, University of Sydney Nano Institute and Co-Director, NSW Smart Sensing Network

Ben Eggleton's ground-breaking research in photonics underpins novel applications in telecommunications, quantum technologies, and smart sensors. He has received \$60 million in research funding, has been an ARC Laureate Fellow and founding director of the ARC Centre of Excellence for Ultrahigh Bandwidth Devices for Optical Systems (CUDOS).

He has published over 500 journal papers cited over 40,000 times with an h-number of 110 (Google Scholar). Eggleton is a Fellow of both the Australian Academy of Science and the Australian Academy of Technological Sciences and Engineering, the Optical Society of America (OSA), the International Society for Optics and Photonics (SPIE), the Institute of Electrical and Electronics Engineers (IEEE), and the Royal Society of NSW.

Sensor devices that detect events or changes in their environment are used in everyday objects such as smartphones and ubiquitous applications of which most people are never aware. Recent advances in device physics, nanotechnology, AI, and sensor fusion are leading to a revolution in smart sensor technology that will provide multi-faceted interfaces to the three-dimensional physical, chemical, and data environment, enabling high-performance information gathering and real-time situational awareness.

The talk provided an overview of recent examples from industry and end-user sponsored projects, including research from the NSW Smart Sensing Network where it was explained how smart sensors can forecast air pollution and urban heat, reduce the maintenance costs associated with leaks and breaks of water pipes, and remotely monitor soil moisture. At the Sydney Nano Institute it has been shown how single-molecule sensing and wearables are providing for the rapid testing of infectious disease, underpinning a robust roadmap to COVID-19 recovery and beyond. Professor Eggleton described how in the Jericho Smart Sensing Lab, sponsored by the Royal Australian Air Force, smart sensors are providing the Air Force with enhanced, advanced situational awareness that enables smart, timely decision-making.

There followed a question and answer session moderated by the President.

7 VOTE OF THANKS

The vote of thanks was given by Emeritus Professor Christina Slade FRSN, Chair of the Events Committee.

8 CLOSE

Dr Pond closed the meeting at 7.26pm.