

Minutes of the 1309th Ordinary General Meeting of The Royal Society of New South Wales held in the Gallery Room, State Library of NSW on Wednesday 7 December 2022 at 6.30PM.

There were 30 Members, Fellows and guests in attendance.

1. WELCOME

The President, Dr Susan Pond AM FRSN presided at the meeting. She welcomed members and guests and gave an acknowledgement of country. She also referred to the Society's Diversity and Inclusion Policy and asked that members consider nominating candidates for membership of the Society who reflect diverse backgrounds and experiences across NSW.

2. MINUTES OF THE 1308TH ORDINARY GENERAL MEETING HELD ON 23 NOVEMBER 2022

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

3. CONFIRMATION OF MEMBERSHIP

If no valid objection is lodged within two weeks following the 1308th Ordinary General Meeting held on 23 November, the election of the following new Members will take effect from the date of that meeting, that is, 23 November 2022.

MEMBERSHIP

Professor Martina Doblin
Dr Andrei Herdean
Dr Agota Tuzesi

4. ANNOUNCEMENT OF NAMES OF CANDIDATES FOR FELLOWSHIP AND MEMBERSHIP

If no valid objection is received within two weeks following this meeting, that is by 21 December 2022, the election of the following new Member will take effect from the date of this meeting, that is, 7 December 2022.

MEMBERSHIP

Bhavin Raval

5. REPORT FROM COUNCIL AND COMMITTEES OF COUNCIL

5.1 Announcement of Awards for 2022

The President announced the following recipients of the Society's Awards for 2022.

- **The James Cook Medal** - for outstanding contributions to science and human welfare in and for the Southern Hemisphere. This medal is the Society's most prestigious award. The 2022 James Cook Medal is awarded to Emeritus Professor John Church AO FAA FTSE FAMS FAGU Climate Change Research Centre, UNSW Sydney
- **The Clarke Medal** – for distinguished research in the natural sciences conducted in Australia and its territories. This year's award is in the field of geology. The 2022 Clarke Medal is awarded to Professor Andrew Baker FAGU, School of Biological and Behavioural Sciences, UNSW Sydney

- **The Edgeworth David Medal** – for distinguished contributions by a young scientist under the age of thirty-five years, for work done mainly in Australia or its territories; or contributing to the advancement of Australian science. The 2022 Edgeworth David Medal is awarded to Dr Timothy Doherty, School of Life and Environmental Sciences, University of Sydney
- **The History and Philosophy of Science Medal** - in recognition of outstanding achievement in the History and Philosophy of Science with preference being given to the study of ideas, institutions, and individuals of significance to the practice of the natural sciences in Australia. The 2022 History and Philosophy of Science Medal is awarded to Emeritus Professor Stephen Gaukroger FRSN, FAHA FRHistS FRSA, School of History and Philosophy of Science, University of Sydney
- **The Walter Burfitt Prize** - awarded every three years for research in pure or applied science, deemed to be of the highest scientific merit. The 2022 Walter Burfitt Prize is awarded to Distinguished Professor Susan Scott FAA FEurASc, College of Science, ANU
- **The Liversidge Lectureship** - awarded biennially for research in chemistry. The 2022 Liversidge Lectureship is awarded to Professor Timothy Schmidt FRACI FRSN CChem, School of Chemistry, UNSW Sydney
- **The Warren Prize** - awarded to recognise research of national or international significance by early- or mid-career engineers and technologists. The 2022 Warren Prize is awarded to Professor Anita Wing Yi Ho-Baillie AO FRSN FAA FTSE, John Hooke Chair of Nanoscience, University of Sydney
- **The Jak Kelly Award** - created in honour of Professor Jak Kelly (1928 – 2012) who was President of the Royal Society of New South Wales in 2005 and 2006. The Award encourages excellence in postgraduate research in physics. It is supported by the Royal Society of New South Wales and the Australian Institute of Physics, NSW branch. The winner is selected from a short list of candidates who made presentations at the most recent Australian Institute of Physics, NSW Branch postgraduate awards event. The winner of the Jak Kelly Award for 2022 is Mr Shankar Dutt, Research School of Physics ANU
- **The Royal Society of NSW Scholarships for 2022** - awarded each year to acknowledge outstanding achievements by young researchers in any field of science. The winners of the 2022 Royal Society of NSW Scholarships are

Miss Chung Ming (Clara) Liu, School of Biomedical Engineering, UTS
 Mr Thomas Mesaglio, School of Biological, Earth & Environmental Sciences UNSW Sydney
 Ms Anyang (Anyang) Zhao, John Curtin School of Medical Research, ANU

5.2 Nominations and election for 2023 Council

The President advised members of the timetable for nominations for the 2023 Council and the 2023 elections, if needed, as follows:

Nominations open	Noon Monday 20 February
Nominations close	Noon Monday 6 March
Voting opens (if necessary)	Noon Monday 13 March
Voting closes	Noon Monday 3 April
Annual General Meeting	6.30pm Wednesday 5 April

5.3 Annual Dinner 2023

The President advised that the 2023 Annual Dinner and Award Presentations would be held in the Meers Hall in Sydney Modern Wing of the Art Gallery of NSW on Friday 10 March.

5.4 Additional Awards in 2023

The President advised there would be a number of additional awards in 2023 as follows:

Medals – Contributions in sciences and/or humanities

Aboriginal and/or Torres Strait Islander Medal
Early Career (0-5 years post PhD) Medal

Awards – Discipline-specific

Social and Behavioural Sciences
Humanities Philosophy and Law
Creative Arts and/or Performance
Interdisciplinary research

6 QUESTIONS

There were no questions.

7 THIS EVENING'S PRESENTATION

HARNESSING SOLAR ENERGY THROUGH CATALYSIS TO MAKE CHEMICALS AND FUEL

Rose Amal AC FRSN FAA FTSE Scientia Professor of Engineering, School of Chemical Engineering UNSW Sydney

Professor Rose Amal is the leader of the Particles and Catalysis Research Group at UNSW Sydney, and Co-Director of ARC Training Centre for the Global Hydrogen Economy. Her current research focuses on designing nanomaterials for solar and chemical energy conversion applications, and engineering systems for solar-induced processes, using the sun's energy to generate clean fuel.

She was appointed a Companion of the Order of Australia in the Queen's Birthday Honours in 2018 for her eminent service to chemical engineering, particularly in the field of particle technology, through seminal contributions to photocatalysis, to education as a researcher and academic, and to women in science as a role model and mentor. Rose Amal was named the 2019 NSW Scientist of the Year and awarded the CHEMECA medal and the James Cook Medal of the Royal Society of NSW in 2021.

Catalysis is the heart of chemistry – most chemical reactions need catalysts – so these reactions need to be efficient and the process as sustainable as possible. Turning to the sun as an energy source to activate catalysts is an obvious place to focus investigations because it reduces reliance on unsustainable fossil fuels. There are a number of means in utilising the sun's energy to drive energetically demanding catalytic processes. We can use (i) electricity from photovoltaic transformation of sunlight to drive electro-catalytic reactions (electrocatalysis), (ii) heat of the sun to activate thermal catalyst (thermal catalysis) and (iii) light of the sun to excite electrons from valence band of a semiconductor to its conduction band (photo catalysis).

Professor Amal presented ongoing research in harnessing the full solar energy spectrum (from ultraviolet to infrared) to induce or/and enhance catalytic CO₂ and NO_x reduction. Using solar energy to catalytically reduce CO₂ and NO_x has the potential to convert the waste CO₂ and NO_x into fuel and feedstocks, allowing the dual opportunity to store the intermittent renewable energy as well as closing the anthropogenic carbon and NO_x cycle.

There followed a question and answer session moderated by Dr Elizabeth Deane

8 VOTE OF THANKS

Dr Elizabeth Deane gave the vote of thanks.

9 CLOSE – President, Dr Susan Pond AM FRSN

The President closed the meeting at 7.45pm.