



Message from the Chief Executive

March 28, 2019

I start the March newsletter on a sombre note, recognising the passing of **Dr Margaret Middleton**¹, aged 90. Dr Middleton generously supported young researchers by establishing the Margaret Middleton Fund for endangered Australian native vertebrate animals which is administered by the Academy. In doing so, she supported 82 research projects,

many of which would not have been undertaken if it were not for her commitment to ecological research. Research projects ranged from ways to fight infections in koalas to the impact of plastic ingestion by sea turtles. While her legacy lives on, we shall miss her wise words and commitment to science.

The Margaret Middleton grant is one of a number grants and awards offered by the Academy. With nominations now open for the Academy's 2020 awards, we need your help to identify scientists who have made outstanding contributions to science or have helped progress the advancement of science in Australia.

The Academy is continually seeking to increase the diversity of applicants for all our grants and awards. We strongly urge women and scientists from other under-represented groups to apply. The Academy makes continual improvements to its awards program to ensure best practice in our selection processes.

Time is running out with **honorific award**² nominations closing

on 1 May 2019 and **research conferences**³, **research awards**⁴ and **travelling fellowships**⁵ closing on 1 June 2019.

And finally, please don't forget to **register for Science at the Shine Dome 2019**⁶—this year's event will be better than ever as we celebrate 65 years of the Academy and 60 years of the iconic Shine Dome.

Enjoy the March newsletter.

Anna-Maria

Nominations open for Academy's 2020 awards

March 15, 2019

Nominations are now open for the Academy's 2020 honorific awards, research conferences, research awards and travelling fellowships.

These awards and funding opportunities shine a light on researchers who have made outstanding contributions to science and help to progress the advancement of science in Australia.

The awards recognise remarkable achievements in research fields including Earth sciences, biology,

1 <https://www.science.org.au/about-us/support-us/donor-stories/vale-dr-margaret-middleton-pillar-science-and-academy>

2 <https://www.science.org.au/opportunities-scientists/recognition/honorific-awards>

3 <https://www.science.org.au/opportunities/conference-lecture-funding>

4 <https://www.science.org.au/opportunities/research-funding>

5 <https://www.science.org.au/opportunities/travel/travelling-fellowships>

6 <https://aas.eventsair.com/2019-science-at-the-shine-dome>

physics, mathematics, chemistry, global health, genetics and more.

The Academy is committed to **celebrating and supporting diversity**⁷. It is seeking nominations of outstanding scientists from all career stages, backgrounds and genders, and strongly encourages more nominations of women for all awards, in particular the career and mid-career honorific awards.

In the 2019 honorific award round announced recently, the Academy recognised scientists' discoveries across the breadth of research—from how oceanic circulation impacts the climate to pioneering biotechnological methods for sequencing crop genomes.

Dr Kim-Anh Lê Cao from the University of Melbourne was awarded the 2019 Moran Medal for her work in developing novel statistical and computational methods for biological data analysis.

'Science informs everything we know about all the world. Trying to answer very fundamental questions about how the world is shaping our planet, I think is really what drives me.' she said.

The closing date for **honorific award**⁸ nominations is **1 May 2019**. The closing date to apply for **research conferences**⁹, **research awards**¹⁰ and **travelling fellowships**¹¹ is **1 June 2019**.

See all award and funding opportunities¹²



2019 Moran Medal recipient, Dr Kim-Anh Lê Cao

Bright stars of Australian science recognised with Academy Awards

February 28, 2019

Outstanding contributions to science have been recognised by the Australian Academy of Science today with 20 of Australia's leading scientists and future superstars receiving **prestigious 2019 honorific awards**¹³.

The scientists' discoveries cross the breadth of research from how oceanic circulation impacts the climate, to the use of tools that advance the understanding of the chemistry within cells and how the body's immune defences combat infectious disease.

Distinguished Professor Chennupati Jagadish AC FAA from the Australian National University has been awarded one of the Academy's top honours, the Thomas Ranken Lyle Medal. He helped develop semi-conductors used in LED lights. He

also designed and developed some of the world's smallest lasers. Born in India, Professor Jagadish grew up without electricity.

"I didn't have much light as a child and studied in front of a kerosene lamp until Year 7. That's why I'm interested in developing technologies that will benefit humanity," Professor Jagadish said.

Protecting crops from disease is essential for our food sources. Mid-career researcher Professor Jaqueline Batley from The University of Western Australia is studying the DNA of plants to better understand genes that lead to greater crop resilience. Her research has helped increase crop yields for canola, broccoli, cabbage and wheat. A role model for women in STEM, Professor Batley is the recipient of the Nancy Millis Medal for Women in Science.

Early-career researcher Associate Professor Anna Giacomini from the University of Newcastle has pioneered research in rock mechanics and rockfall analysis in civil and mining engineering. Her research has resulted in the design of new low-energy rockfall barriers that are now used extensively along our major corridors in Australia. Associate Professor Giacomini is one of two recipients of the John Booker Medal.

President of the Australian Academy of Science, Professor John Shine,

7 <https://www.science.org.au/about-us/diversity-and-inclusion>

8 <https://www.science.org.au/opportunities-scientists/recognition/honorific-awards/honorific-awardees/2019-awardees>

9 <https://www.science.org.au/opportunities/conference-lecture-funding>

10 <https://www.science.org.au/opportunities/research-funding>

11 <https://www.science.org.au/opportunities/travel/travelling-fellowships>

12 <https://www.science.org.au/opportunities>

13 <https://www.science.org.au/opportunities-scientists/recognition/honorific-awards/honorific-awardees/2019-awardees>

congratulated all the award winners for their inspiring research.

“These awards highlight just some of the important and distinguished research being led by Australian scientists, who seek to address some of society’s biggest challenges. Recognising and highlighting outstanding scientific contributions is important, as award recipients are the STEM role models for the next generation,” Professor Shine said.

The Academy’s 2019 honorific awards go to:

Career honorifics (for lifelong achievement)

- David Craig Medal—Professor Peter Gill FAA, Australian National University
- Hannan Medal—Professor Alan Welsh FAA, Australian National University
- Jaeger Medal—Professor Dietmar Müller FAA, University of Sydney
- Thomas Ranken Lyle Medal—Professor Chennupati Jagadish

AC FAA, Australian National University

- Matthew Flinders Medal and Lecture—Dr Richard Manchester FAA, CSIRO Australia Telescope National Facility (previously announced)

Mid-career honorifics (8–15 years post-PhD)

- Jacques Miller Medal for experimental biomedicine—Professor Nicholas David Huntington, Walter and Eliza Hall Institute of Medical Research and Monash University
- Nancy Millis Medal for Women in Science—Professor Jacqueline Batley, The University of Western Australia

Early-career honorifics (up to 10 years post-PhD)

- Anton Hales Medal—Professor Isaac Santos, Southern Cross University
- Christopher Heyde Medal—Professor Geordie Williamson FAA FRS, University of Sydney

- Dorothy Hill Medal—Dr Laurie Menviel, UNSW Sydney
- Fenner Medal—Dr Daniel Falster, UNSW Sydney
- Gottschalk Medal—Associate Professor Laura Mackay, Doherty Institute
- John Booker Medal
 - Professor Changbin Yu, Australian National University and Westlake University (China)
 - Associate Professor Anna Giacomini, University of Newcastle
- Le Fèvre Medal
 - Associate Professor Elizabeth New, University of Sydney
 - Dr Lars Goerigk, University of Melbourne
- Moran Medal
 - Dr Kim-Anh Lê Cao, University of Melbourne
 - Associate Professor Stephen Leslie, University of Melbourne

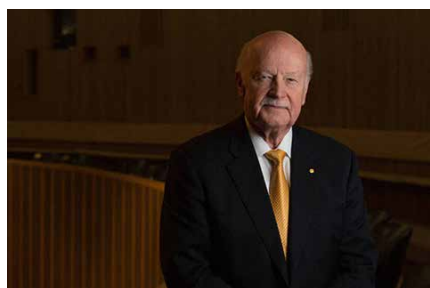


Twenty of Australia’s leading scientists and future superstars have received the Academy’s prestigious 2019 honorific awards.

- Pawsey Medal—Professor Steven Flammia, University of Sydney
- Ruth Stephens Gani Medal—Dr Justin Wong, Centenary Institute of Cancer Medicine and Cell Biology

The majority of the honorific awards will be presented at the Academy's annual celebration of **science, Science at the Shine Dome**¹⁴ on 30 May 2019. **Read more about the Academy's 2019 honorific awardees**¹⁵.

Know an amazing Australian scientist? Nominate them for an award. Nominations and applications are now open for the 2020 Australian Academy of Science **honorific awards**¹⁶, **research conferences**¹⁷, **research awards**¹⁸ and **travelling fellowships**¹⁹.



*Australian Academy of Science President
Professor John Shine AC FAA*

Academy President urges Australia to join heritable genome editing moratorium

March 28, 2019

The President of the Australian Academy of Science Professor John Shine AC FAA has welcomed calls for



Watch the *Gene-editing Curious* video: <https://youtu.be/DMMs4MOrPFA>

a global moratorium on all clinical uses of genetic editing of heritable human DNA.

The proposal was made by a group of eminent scientists in the journal **Nature**²⁰ as a way of ensuring controlled development of new gene editing technology. It follows claims revealed last year that a scientist in China edited the DNA of early embryos in treatments that resulted in the birth of twins with an altered genome.

Professor Shine said that germline editing of human DNA (changing the genetic code in a way that could be inherited by future generations) has the potential to deliver revolutionary new treatments for a number of genetic diseases. However, it has not been tested in humans or shown to be safe.

“The Australian Academy of Science believes it is a matter of urgency that Australia joins other nations in

considering these important issues and implementing a moratorium on heritable human gene editing in Australian universities, Medical Research Institutes, clinics and hospitals,” Professor Shine said.

Germline editing of human embryos for reproductive purposes is prohibited in Australia.

“We urge the National Health and Medical Research Council, which has responsibility for oversight of the relevant legislation, to implement a moratorium on considering legislative change to allow heritable human gene editing for reproductive purposes in Australian Universities, Institutes, clinics and hospitals,” Professor Shine said.

“Neither the scientific nor the wider community has had the opportunity to discuss the technical, scientific, medical, societal, legal and ethical issues that must be considered before any

¹⁴ <https://www.science.org.au/news-and-events/events/science-shine-dome>

¹⁵ <https://www.science.org.au/opportunities-scientists/recognition/honorific-awards/honorific-awardees/2019-awardees>

¹⁶ <https://www.science.org.au/opportunities-scientists/recognition/honorific-awards>

¹⁷ <https://www.science.org.au/opportunities/conference-lecture-funding>

¹⁸ <https://www.science.org.au/opportunities/research-funding>

¹⁹ <https://www.science.org.au/opportunities/travel/travelling-fellowships>

²⁰ <https://www.nature.com/articles/d41586-019-00726-5>

possible clinical or therapeutic use of such technologies in humans.”

To begin this consultative process, the Academy will convene a meeting of relevant stakeholders to begin discussions on the implications of possible uses of human germline gene editing and to discuss implementation of a moratorium in Australia.

Register now for Science at the Shine Dome

March 25, 2019

28–30 May

The Shine Dome, Australian Academy of Science, Canberra

Registration is now open for Science at the Shine Dome, the Academy’s premiere annual event. The gathering of Australia’s most influential scientists will take place 28–30 May, bringing together researchers from all disciplines and career levels to share knowledge at the iconic Shine Dome in Canberra. The Academy will welcome new Fellows, congratulate the recipients of the Academy’s honorific awards,

and support attendees to celebrate, share and network with Australia’s scientific community.

This year is the 65th anniversary of the founding of the Australian Academy of Science and the 60th anniversary of the completion of the heritage-listed Shine Dome. These milestones will be honoured and the Academy’s achievements marked.

Attendees are welcome to register for some or all of the functions across the three-day event.

The role of science in a sustainable energy future

The three-day event will kick off with ‘Power Up Australia, the sustainable way’, a one-day symposium on Tuesday 28 May, exploring the role of science in a sustainable energy future. Australia’s Chief Scientist, Dr Alan Finkel, will deliver a keynote address to open the symposium. Other speakers include Professor Stuart White (University of Technology Sydney), Ms Claire Johnson (CEO, Hydrogen Mobility Australia), Associate

Professor Jenny Pringle (ARC Centre of Excellence for Electromaterials Science), Professor Kylie Catchpole (Australian National University), Associate Professor Gregor Verbic (University of Sydney) and Associate Professor Claudia Vickers (University of Queensland).

New Fellows

Newly-elected Fellows will be formally admitted to the Academy on the Tuesday evening. They will then present their work and achievements the following day.

Early- and mid-career researchers

This year, Science at the Shine Dome will feature a dedicated EMCR program to allow EMCRs more opportunities to connect with their peers, build networks, and take part in professional development opportunities.

The Academy has **EMCR partnership opportunities**²¹ available for workplaces to support EMCR full attendance at the event. **EMCR support packages**²² are available and cover the cost of registration, accommodation and travel expenses, as well as offering promotional opportunities for the EMCR’s workplace.

EMCRs are encouraged to discuss this opportunity with their workplace. Contact the Academy for more information: events@science.org.au.

Gala dinner and award presentations

The 2019 Gala Dinner will be held on the evening of Wednesday 29 May at the National Museum of Australia, offering attendees



Watch the Science at the Shine Dome Curious video: https://youtu.be/Ur_uZcvh_Fg

21 <https://newsletter.science.org.au/t/i-i-nujjhy-l-t/>

22 <https://newsletter.science.org.au/t/i-i-nujjhy-l-i/>

the chance to network and celebrate science.

The science celebrations continue with presentations of the 2019 Academy awards on Thursday 30 May.

Diversity and inclusion assistance

To facilitate delegate attendance at the event, onsite child minding, accessibility assistance grants and carer grants are available. Those requiring support are encouraged to **apply for assistance**²³ to enable attendance at this unique and inspiring event.

View the event program and register for the event²⁴

Academy's Fenner collection listed on UNESCO register

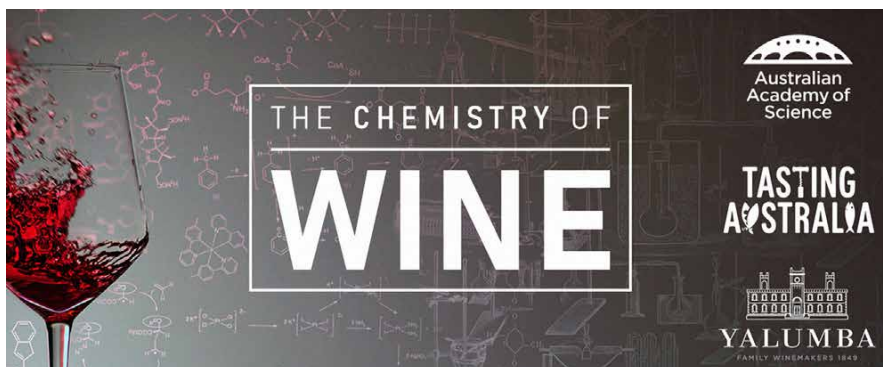
March 25, 2019



Dr John Vallance, NSW State Librarian, presents Academy Fellow Professor Ruth Hall (centre) and ANU 'Archivist Emerita' Maggie Shapley with certificates of inscription.

The Frank Fenner manuscript collection, held in the Australian Academy of Science archives, was recently added to the **UNESCO Australian Memory of the World Register**²⁵.

Two smaller Fenner collections, at the Australian National University and the University Adelaide,



were jointly added to the register alongside the Academy's collection to complete the listing.

Professor Frank Fenner AC CMG MBE FAA FRS is widely known for his significant contribution to control of the rabbit plague in Australia, and to the eradication of smallpox.

The collection documents Professor Fenner's enormous contribution to scientific research and science communication over more than eight decades. It is also an unexpectedly rich personal archive documenting Fenner's family background and education, his broad ranging intellectual interests, the history and development of the Australian National University, and his contributions to the broader community, thus providing a valuable source for social history.

The Australian Memory of the World program honours documentary heritage of significance for Australia. Its register contains more than 60 inscriptions of important documentary heritage, from Captain James Cook's Endeavour Journal to the Mabo Case manuscripts.

There are few science-related listings on the register, so this is

an important inscription for the Academy and for preserving the history of science in Australia.

Academy Fellows Professor Ruth Hall and Professor Tony Basten attended an inscription ceremony at the State Library of NSW on behalf of the Academy, and were presented with a certificate of inscription.

Wine: a chemistry journey to remember

March 25, 2019

*5.30 pm, Wednesday 10 April
National Wine Centre
\$27.55*

Have you ever wondered why your favourite wine tastes, smells and looks the colour it does? It's chemistry.

Join Yalumba chief winemaker, Louisa Rose, and Professor Kerry Wilkinson from the University of Adelaide, as they delve into the chemistry of wine at the National Wine Centre. As you sip on award-winning Yalumba wines, Louisa and Kerry will take you on a chemistry journey to remember, exploring colour, aroma, style and faults. Canapés included.

²³ <https://newsletter.science.org.au/t/i-i-nujjhy-l-d/>

²⁴ <https://aas.eventsair.com/2019-science-at-the-shine-dome>

²⁵ <http://www.amw.org.au/news/articles/eleven-new-inscriptions-added-unesco-australian-memory-world-register>

This unique event is presented by the Australian Academy of Science and supported by Yalumba and the University of Adelaide.

More information on the Chemistry of Wine²⁶

Taxonomy Australia takes flight with new website

March 19, 2019

Taxonomy Australia, a new program of the Australian Academy of Science, has **launched its website**²⁷—with the aim of propelling taxonomy and biosystematics onto the radar of policymakers, scientists and the broader community.

Taxonomy and biosystematics are the branches of science that deal with discovering, describing and naming new species.

‘It’s a foundational science,’ said Dr Kevin Thiele, Director of Taxonomy Australia. ‘It gives us the names that we use to understand the world around us. All other biological sciences use taxonomy.’

The new program, which is overseen by an Academy steering committee, arose out of the **decadal plan for taxonomy and biosystematics**²⁸, published last year by the Academy.

Both the decadal plan and new organisation emerged from the Australian taxonomy community’s desire to raise the profile and



Watch ‘Sir David Attenborough backs new biodiversity plan for Australia and NZ’ Curious video: https://youtu.be/_L_oh6yKvTo

visibility of taxonomy as a key scientific discipline.

It is estimated that as much as 70 per cent of Australia’s biodiversity remains undescribed. At the current rate, it will take 400 years to finish describing all of Australia’s species—a time frame that will likely see many species become extinct.

‘A very important first step is to try to change the positioning of taxonomy with the community and government and indeed with other sciences—to put the case it’s foundational, it’s really important and it’s also really cool,’ Dr Thiele said.

Taxonomy Australia will function through a membership system to advocate for taxonomy, raise the profile of the discipline and empower scientists to tell their research stories.

The website offers a platform for scientists to describe their work in discovering the unknown and exploring our natural world.

The website launch coincides with Taxonomist Appreciation Day, an unofficial day to acknowledge and celebrate the important work of taxonomists around the world.

A paid subscription model of membership will be launched later this year. For now, **browse the latest stories**²⁹ on the website, **sign up to email updates**³⁰ and follow Taxonomy Australia on **Twitter**³¹.



Taxonomists estimate there may be 30,000 arachnid species in Australia, with only 20 per cent currently named. There are more than 70 named peacock spider species (Maratus spp.) with three new species named in March 2019. Image credit: © Denis Hogan.

26 <https://www.science.org.au/news-and-events/events/chemistry-wine>

27 <https://www.taxonomyaustralia.org.au/>

28 <https://www.science.org.au/support/analysis/decadal-plans-science/discovering-biodiversity-decadal-plan-taxonomy>

29 <https://www.taxonomyaustralia.org.au/about-our-stories>

30 <https://www.taxonomyaustralia.org.au/subscribe>

31 <https://twitter.com/australtaxonomy>



Academy Fellow Emeritus Professor Cheryl Praeger (second from left), at the presentation of the S20 statement to Japan's Prime Minister Shinzo Abe (front right).

S20 urges measures to tackle marine plastic pollution and other major threats

March 26, 2019

The world's leading science academies have sent a strong message to the world that science has a crucial role in protecting coastal and marine ecosystems from very serious current and future threats.

The national academies of the world's wealthiest countries, known as the S20, **produced a statement**³² at a gathering in Japan recently outlining the greatest dangers to marine environments: plastic debris and other pollution, damaging fishing practices, and global warming, ocean acidification and ocean deoxygenation.

The statement emphasised the importance of expert research, innovation and evidence-based approaches toward resolving undesirable impacts on marine environments and ocean health that are directly linked

to ecosystems and human wellbeing. It also encouraged increased recycling and energy efficient practices, as well as global collaborations at all levels with science-based target setting and follow ups to reduce stressors on coastal and marine ecosystems.

Academy Fellow Emeritus Professor Cheryl Praeger represented the Australian Academy of Science at the event, and coral reef expert Academy Fellow Professor Terry Hughes provided advice to the statement.

The statement, 'Threats to Coastal and Marine Ecosystems and Conservation of the Ocean Environment—with Special Attention to Climate Change and Marine Plastic Waste', was submitted to Japan's Prime Minister Shinzo Abe.

This was the first time the S20 was held in Asia and comes ahead of the major G20 summit to be held in June in Japan.

The 2020 S20 and G20 meetings will take place in Saudi Arabia.



Watch 'Turtles and plastic pollution' Curious video: <https://youtu.be/J1klRSR0ov4>

Grants available for EMCRs to travel to France and Europe

March 25, 2019

The Academy has opened a call for applications from Australian early- and mid-career researchers (EMCRs) for the France and Europe Mobility Grants Program.

The EMCR mobility grants are intended to strengthen international research networks. They provide support of up to \$5000 for Australian researchers to travel to France and Europe and work with leading researchers at major science and technology organisations for a period of between 14 and 28 days. The grants are supported by the Bede Morris and Rod Rickards memorial funds respectively.

The closing date for applications is 9 am (AEST) Monday 8 April 2019.

The Bede Morris Memorial Fund was established in honour of Professor Bede Morris FAA (1927–1988), one of Australia's most distinguished medical scientists. The fund has been supporting Australian researchers to conduct research in France since 1990. The mobility grants are available

32 <http://www.s20japan2019.org/s20/documents.html>



for Australian EMCRs to conduct research in collaboration with a French research organisation in any field of the natural sciences. It is expected that 4–5 Australian researchers will be supported through this round of the fund.

The Rod Rickards EMCR mobility grants were established in honour of Professor Rod Rickards FAA (1934–2007), one of the most important contributors to Australian science through his outstanding achievements in the chemistry of compounds of medical, biological, agricultural and veterinary importance. The mobility grants are available to support research projects conducted in collaboration with a European research organisation in the areas of chemistry or biology. It is expected that 10–12 Australian researchers will be supported through this round of the fund.

Candidates must have a PhD degree at time of application, with the degree having been conferred no more than 15 years prior to submitting the grant application.

More information on the France and Europe EMCR Mobility Grants³³

From the archives: The Academy's founding document

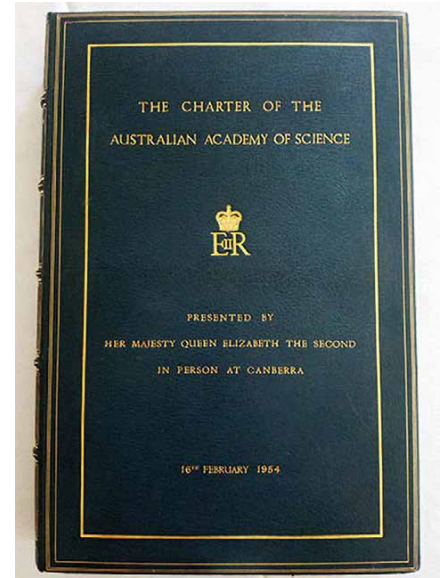
March 25, 2019

The Academy's Basser Library and Fenner Archives contain a treasure trove of stories from the history of Australian science.

On 16 February 1954, a group of scientists—the ten members of the Academy's first Council—gathered during a small ceremony at Government House. They were there to receive the Academy's founding document, the Royal Charter.

It had been a somewhat frantic effort to get to this point. Renowned physicists Sir Mark Oliphant AC KBE FAA FTSE FRS and Dr David Martyn FAA FRS, equipped with a 'just do it' attitude, led the charge to set up a learned academy down under. The pair were backed by a handful of Australian Royal Society Fellows as well as Prime Minister Menzies.

The race was on to get a Royal Charter ready for Queen Elizabeth II's visit to Australia in 1954. The Charter would officially establish the existence of the Australian Academy of Science, as well as set out the Academy's structure,



purpose and operations. A petition and draft charter for the proposed academy were sent to London in late 1953 and rushed through the Privy Council approval process, before the charter went to the Queen for her official seal.

The Royal Charter was signed, sealed and delivered to Canberra by 2 February 1954—just in time for the royal couple's Canberra sojourn.

The initial idea had been to have Prince Philip, a keen supporter of science, present the Royal Charter. However, he changed his mind, instead suggesting that the situation was important enough for the Queen herself to do the honours. He said that a Royal Charter had not been presented in person by any monarch since

33 <https://www.science.org.au/opportunities/travel/grants-and-exchange/france-and-europe-emcr-mobility-grants>

King Charles II presented one to the Royal Society of London in 1662.

Just as the petitioning process had been a little ‘fly-by-the-seat-of-one’s-pants’, the presentation of the Royal Charter was hilariously haphazard. The scientists’ visit to Government House included a dropped rifle, an intrusion by an unsuspecting, feather-duster-toting maid, and Menzies hiding in the butler’s pantry. The presentation itself began late, after Prince Philip failed to realise the Queen was waiting for him and instead spent his merry time playing with an espresso coffee machine.

Nonetheless, the Royal Charter was presented sometime between 4.30 and 5 pm, bestowing the nascent Australian Academy of Science with the authority and gravitas suited to an organisation promoting scientific excellence.

It turns out that Prince Philip hadn’t quite got his history correct—while King Charles certainly signed the Royal Society’s charter, he did not deliver it in person. That makes the Australian Academy of Science perhaps the only body in the Commonwealth to receive its charter directly from the hands of the monarch!

Future Earth Australia leads co-design of urban sustainability national strategy

March 25, 2019

Future Earth Australia is leading the co-design and co-production of a

national strategy for **urban systems transformations—sustainable cities and regions**³⁴.

A program of the Australian Academy of Science, **Future Earth Australia**³⁵ is a national peak initiative that enables Australian scientists, governments, industry and NGOs to collaborate with each other and with international networks and programs across Australia.

Over November 2018 and February 2019, the Future Earth Australia team ran consultation workshops to gather knowledge that can support Australia’s transformation to sustainable urban systems. The workshops attracted 294 participants, spanning senior levels of government, industry, research and NGO sectors.

Workshops were held in Adelaide, Alice Springs, Canberra, Darwin (including an Indigenous yarning circle), Melbourne, Perth, South East Queensland, Sydney City and Western Sydney, with Tasmania to come. Future Earth Australia is pleased to have had very engaging and productive collaborations as a result of the workshops.

Future Earth Australia is now co-hosting the global Future Earth **Urban Knowledge Action Network**³⁶ together with Tokyo University. This is a global network of researchers and other innovators in policy, business, civil society and more, working to solve the most pressing challenges facing cities worldwide.



The Perth urban systems transformation workshop was held at Curtin University’s heritage-listed Old Perth Boys’ School building.



Hareem Khan—one of the ten young Australian physicists attending the Lindau Nobel Laureate Meeting.

Top young physicists to attend Lindau Nobel Laureate Meeting

March 01, 2019

Ten of Australia’s top young physicists, seven of them women, have earned the opportunity to attend a highly prestigious annual gathering of Nobel Laureates and emerging scientists from around the world.

The 69th Lindau Nobel Laureate Meeting in Germany will see a record 42 Nobel Prize winners—including Academy Fellow Professor Brian Schmidt—joining the young scientists at the event.

The Australian PhD candidates and postdoctoral researchers attending are:

34 <https://aas.eventsair.com/urban-systems-transformation-sustainable-cities/>

35 <http://www.science.org.au/supporting-science/future-earth-australia>

36 <http://futureearth.org/future-earth-urban>

- **Dr Katie Sizeland**—Postdoctoral Fellow, ANSTO, who is investigating the nanostructure and mechanical properties of collagen
- **Fiona Panther**—PhD Candidate, Australian National University, who is researching antimatter in the Milky Way
- **Eliezer Estrecho**—PhD Candidate, ARC Centre of Excellence in Future Low-Energy Electronics Technologies, who studies exciton-polariton Bose-Einstein condensates
- **Dr Matthew Reeves**—Postdoctoral Fellow, ARC Centre of Excellence in Future Low-Energy Electronics Technologies, who is investigating superfluid turbulence and vortex dynamics
- **Dr Nora Tischler**—Postdoctoral Fellow, Griffith University, who works in quantum optics and nanophotonics
- **Melanie Hampel**—PhD Candidate, Monash University, who works in nuclear astrophysics
- **Dr Sarah Walden**—Postdoctoral Fellow, Queensland University of Technology, who studies nonlinear optics and material interactions
- **Hareem Khan**—PhD Candidate, RMIT, who works in electrical and electronics engineering of 2D materials
- **Claire Edmunds**—PhD Candidate, University of Sydney, who is researching quantum computing and information

- **Samuel Hinton**—PhD Candidate, University of Queensland, who is researching dark matter by studying supernovae.

These researchers were nominated by the Academy and selected by the Council for the Lindau Nobel Laureate Meetings. They will receive a grant to enable their attendance at the event, that runs from 30 June to 5 July 2019, through the generous support of the Science and Industry Endowment Fund (SIEF).

The group will also take part in the SIEF Research Innovation Tour in Germany, led by renowned Australian scientist and Academy Fellow, Professor Chennupati Jagadish. The tour will showcase some of Germany's finest research and development, while also providing opportunities to share the research done by the young scientists and encourage scientific collaboration between the two countries.

Join us to hear how 'electronic skin' is enhancing human health

March 25, 2019

5.30 pm, 16 April
The Shine Dome, Australian Academy of Science

Join the Academy at the Shine Dome for the 2019 Canberra Speaker Series, Changing Lives with Science.

Throughout this series attendees will hear remarkable science stories that haven't yet been told. Stories of innovation, research, breakthroughs and how science is solving the big challenges of our time.

Don't miss the next event on **Tuesday 16 April**³⁷ where 'electronic skin', sensors and monitoring technology will be the focus.

Electronic skin might sound futuristic, but Australian scientists are making this cyborg-like tech a reality. These scientists and a Melbourne-based company are merging science, innovation and industry to improve human health.



Watch 'Changing lives with science - speaker series' Curious video: <https://youtu.be/7XHG9GCLUr4>

37 <https://www.science.org.au/news-and-events/events/public-speaker-series/changing-lives-science/changing-lives-science-april>

Hear from Professor Madhu Bhaskaran about how she has developed flexible, unbreakable and transparent electronic devices that function as 'electronic skin'. Her devices have potentially life-saving applications in health and human safety—from fighting skin cancer to detecting dangerous gases.

Also hear from Sleepite CEO, Cameron van den Dungen, about how he is using Madhu's remarkable sensors to improve wellbeing and health outcomes for older Australians. Sleepite sensors provide real-time feedback on a user's health and sleep quality.

More information about the Changing Lives with Science speaker series³⁸



Lead researcher Associate Professor Madhu Bhaskaran holds up a sensor. © Mark Dadswell

Fellows awarded ARC Linkage Project grants

March 19, 2019

Five Fellows of the Australian Academy of Science are among the recipients of the Australian Research Council's Linkage Projects scheme, announced by the Minister for Education Dan Tehan.

The funding for research partnerships includes:

\$898,560 for the University of Western Australia to lead an international project that will test and review the success of teaching Einstein's theories of space, time, matter, light and gravity. The research will be led by Chief Investigator Emeritus Professor David Blair FAA, Professor Susan Scott FAA and collaborators.

\$440,000 for the University of Melbourne to advance the understanding of turbulent heat transfer, to allow more reliable, efficient and durable designs for energy generation. The research will be led by Chief Investigator Professor Richard Sandberg, Professor Ivan Marusic FAA and collaborators.

\$430,000 for the University of Melbourne to establish the capability to manufacture application-specific semiconductor lasers. The project will use existing facilities in Australia to enhance Australia's quantum science research and establish a viable export-dominated high-tech manufacturing business. The research will be led by Chief Investigator Professor Robert Scholten, Professor Chennupati Jagadish FAA and collaborators.

\$460,000 for the Australian National University to improve the management of Australia's threatened mammals. Using new genomics methods, the project will measure the effects of small population size on genetic diversity and mutation load, in extinct as well as remnant and translocated

populations. The research will be led by Chief Investigator Professor Craig Moritz FAA and collaborators.

More information about the grants³⁹



Professor Susan Scott FAA is one of five Fellows to receive ARC Linkage Projects scheme funding.

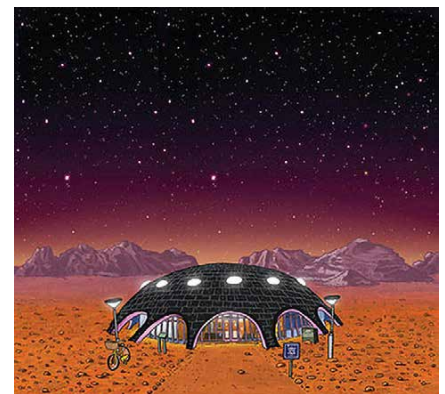


Illustration © Trevor Dickinson.

Shine Dome to open for Canberra Heritage Festival

March 25, 2019

5 May

The Shine Dome, Australian Academy of Science

The iconic heritage-listed Shine Dome will be **open to the public on Sunday 5 May⁴⁰** as part of the Canberra and Region Heritage

38 <https://www.science.org.au/news-and-events/events/public-speaker-series/changing-lives-science>

39 <https://rms.arc.gov.au/RMS/Report/Download/Report/a3f6be6e-33f7-4fb5-98a6-7526aaa184cf/199>

40 <https://www.science.org.au/news-and-events/events/tours-shine-dome>

Festival, and to celebrate its 60th Anniversary.

Make the most of this rare chance to explore the Shine Dome. Staff from the Australian Academy of Science will be conducting tours and sharing fascinating secrets from the construction of this unique building to the present day.

You can also join us in the Ian Wark Theatre to celebrate the 50th Anniversary of the Moon landing with a **screening of Hidden Figures**⁴¹. This Oscar-nominated film tells the incredible story of three brilliant and inspiring African-American women working at NASA who were the brains behind the launch into orbit of astronaut John Glenn.

The screening will be opened by Australia's Astronomer-at-large, Professor Fred Watson. Before the main feature, the documentary titled *The 50th* by local filmmaker Scott Holgate will be screened. *The 50th* highlights the role two Canberrans, John Saxon and Mike Dunn, played in the Moon landing in 1969.

More information on the Canberra and Region Heritage Festival⁴²

Academy hosts celebration of Australia–France research collaboration

March 25, 2019

On 27 February 2019, the Academy hosted a reception to celebrate research collaborations between Australia and France. The event was organised in collaboration with

the French Embassy in Canberra to coincide with a visit by Mrs Frederique Vidal, French Minister for Higher Education, Research and Innovation.

A delegation of 50 senior scientists from French research institutions, plus another 100 guests, attended the event at the Shine Dome.

Academy Vice President, Dr TJ Higgins hosted the event and opened applications for travel to France funded by the Academy's Bede Morris Fund. This fund was established in honour of Professor Bede Morris FAA (1927–1988), one of Australia's most distinguished medical scientists. The fund has been supporting young Australian researchers to travel to and conduct research in France since 1990.

More information on the 2019 France and Europe EMCR Mobility Grants⁴³



(From left) Academy Chief Executive Ms Anna-Maria Arabia, French Minister for Higher Education, Research and Innovation, Mrs Frederique Vidal, and Academy Vice President Dr TJ Higgins at the event to celebrate research collaborations between Australia and France.

Academy represented at international events

March 25, 2019

Royal Society Te Apārangi centenary celebrations

In February, Professor Cheryl Praeger, immediate past Foreign Secretary of the Academy, travelled to New Zealand for the centenary celebrations of the Royal Society Te Apārangi (which means 'group of experts' in Māori). Celebrations marked the 100th anniversary of the first admission of Fellows in 1919 and included an afternoon of lectures by new Fellows (Ngā Ahurei a Te Apārangi). A gala dinner at the Museum of New Zealand Te Papa Tongarewa included a formal admission ceremony for the new Fellows, and a centenary symposium, 'Inclusive Excellence'.

At the dinner, a birthday cake was cut by the oldest Fellow, geophysicist Dr Eddie Robertson OBE CBE FRSNZ, who was born before the first Royal Society Fellows were admitted.

Academy Fellow, Professor Warrick Couch, was admitted to honorary Fellowship of the Royal Society.

Science 20

Professor Praeger attended the Science 20 (S20) meetings in Tokyo in early March. The gathering of S20 national academies was organised to provide scientific input for the upcoming G20 2019 meeting in Japan, with a statement given to Prime Minister Shinzo Abe on 'Threats to Coastal and Marine

41 <https://www.science.org.au/news-and-events/events/hidden-figures-shine-dome>

42 <http://www.act.gov.au/heritagefestival>

43 <https://www.science.org.au/opportunities/travel/grants-and-exchange/france-and-europe-emcr-mobility-grants>

Ecosystems and Conservation of the Ocean Environment’.

More about the S20 statement⁴⁴

Women in Science for the Developing World anniversary

Also in March, Professor Praeger attended the first anniversary of the formation of the Sri Lankan National Chapter of the UN Organisation for Women in Science for the Developing World (OWSD).

Professor Praeger delivered a plenary lecture on ‘Women in Science: an Australian perspective’ as part of anniversary sessions in Colombo on International Women’s Day. She noted the efforts made in Australia to promote gender equity and diversity in science, technology, engineering and mathematics.



Professor Stefanie Dimmeler with Mr Graeme Selby, chairman of the Selby Scientific Foundation.

World-leading cardiovascular researcher visits Australia

March 25, 2019

Leading cardiovascular researcher Professor Stefanie Dimmeler, Director of the Institute of Cardiovascular Regeneration, Centre for Molecular Medicine

at the University of Frankfurt in Germany, visited several institutions across Australia as part of the **Selby Fellowship**⁴⁵ during January and February.

Professor Dimmeler researches the basic mechanisms underpinning cardiovascular vessel growth with the aim of developing new therapies for heart disease. In particular, her research group works to uncover the role of microRNAs and long non-coding RNAs—part of the mysterious ‘dark genome’—in cardiac ageing, repair and regeneration.

Professor Dimmeler visited eight institutes and universities, including a six-week sabbatical at the Victor Chang Cardiac Research Institute in Sydney. The visits allowed Professor Dimmeler to establish and build on existing collaborations, and to give lectures in Melbourne, Perth, Canberra, Sydney and Brisbane.

Selby Fellowships are awarded to distinguished overseas scientists to visit Australia for public lecture or seminar tours, and to visit scientific centres in Australia.

The Selby Fellowship is financed through the generosity of the trustees of the **Selby Scientific Foundation**⁴⁶.

Applications are now open for the 2020 round of travelling fellowships⁴⁷

Travelling fellowship provides new insights for wildlife management

March 25, 2019



TB has been eradicated from elk in Riding Mountain National Park, Canada by reducing elk density, and reducing their interactions with livestock by fencing off winter food supplies and using livestock guardian dogs.

What happens when you try to save an endangered fox living on an island off the California coast? You might save the foxes, but also threaten endangered seabirds in the process.

This is just one of the situations Dr Graham Nugent encountered on his travels to investigate pest control programs, with the support of the Academy’s **Graeme Caughley Travelling Fellowship**⁴⁸.

Dr Nugent, a wildlife ecologist at Manaaki Whenua Landcare Research in New Zealand, visited colleagues in the USA, Canada, Mexico and Spain in 2018. His first visit centred around sharing knowledge and techniques for invasive mammal control. His second visit focused on disease surveillance, particularly bovine tuberculosis (TB) in deer, elk and wild pigs.

44 <https://www.science.org.au/news-and-events/news-and-media-releases/s20-urges-measures-tackle-marine-plastic-pollution-other-threats>

45 <https://www.science.org.au/opportunities/travel/travelling-fellowships/selby-fellowship>

46 <http://www.selbyscientificfoundation.org.au/>

47 <https://www.science.org.au/opportunities/travel/travelling-fellowships>

48 <https://www.science.org.au/opportunities/travel/travelling-fellowships/graeme-caughley-travelling-fellowship>

The visits provided Dr Nugent with valuable insights into pest control tools and the potential efficacy of a TB vaccine in New Zealand, and opportunities for collaboration on disease surveillance.

The Graeme Caughley Travelling Fellowship commemorates the work of Dr GJ Caughley FAA in ecology and wildlife management. Dr Caughley was a chief research scientist with CSIRO Wildlife and Ecology in Canberra until his death in February 1994. The fellowship is financed through the generosity of his friends and colleagues.

Applications are now open for the 2020 round of travelling fellowships⁴⁹



Dr Margaret Middleton on a visit to the Academy in 2014.

Vale Dr Margaret Middleton—a pillar of science and the Academy

11 March 2019

*10 April 1928 – 2 March 2019
Dr Margaret Middleton, a committed supporter of young researchers, has died aged at the age of 90.*

Dr Middleton had a long and distinguished relationship with the Academy. She became a patron of the Foundation for Science in 1992

and had an active scientific mind throughout her life—not only as an observer on the award in her name but also participating in and leading discussions responding to Colin Butler’s 2003 report on Population and Environment in Australia, joining forces on that occasion with another Academy award patron, Dr William H Gladstones.

In 1997, in consultation with Dr Middleton, plans were laid to establish the the **Margaret Middleton Fund for endangered Australian native vertebrate animals⁵⁰**. The fund offers annual science grants of up to \$15,000 each to support field-based, high-quality ecological research. The objective of the grant is to provide financial support for conservation-based research of Australian ecosystems that ultimately will lead to tangible outcomes for management.

Dr Middleton worked closely with the award selection committee over the following years and read every detail in the applications. Her generous and longstanding contributions have funded 82 research projects since 2000, many of which would most likely not otherwise have been undertaken.

Research projects have ranged from investigations into vaccines against chlamydia infection in koalas, to studies confirming selective plastic ingestion by sea turtles and the disproportional ingestion of balloons, which supported the hypothesis that they ingest debris that resemble natural prey items such as jellyfish.

In 2019 the Academy awarded the Margaret Middleton Award to:

- Ms Rebecca Jane Webb, James Cook University: A novel conservation tool for controlling chytridiomycosis in Australian amphibians.
- Dr Teigan Cremona, Charles Darwin University: Can predator enclosures support recovery of small mammal populations in Kakadu National Park?
- Ms Heather Neilly, Australian Landscape Trust: Malleefowl as ecosystem engineers and drivers of restoration.

Margaret Middleton surrounded herself with an eclectic group of friends. Each and every one could tell stories about their time with Margaret and the keen mind that delighted and challenged the unwary.

Dr David Spratt of CSIRO recalls:

“The following is a memory of Margaret that I shall never forget.

We were sitting in her lounge room one afternoon and got into a discussion of my involvement assisting to organise an International Wildlife Disease meeting held in Maroochydore in July 2015. I was telling her about our traditional silent auction to raise funds to support students. When she learned that my home-made crab apple and quince jellies went for \$200/jar at the auction she asked whether I had any left and if so, she’d like to try some, and support students doing wildlife disease studies. I said I’d bring a jar of each on my next visit. With that she walked into

49 <https://www.science.org.au/opportunities/travel/travelling-fellowships>

50 <https://www.science.org.au/node/111>

her study, came out with a cheque book and wrote a cheque to the WDA Australasian Section for \$5000!!

Needless to say, I was stunned!"

That was Margaret, a most generous individual offering support to students and their wildlife studies.

Professor Andrew Holmes, immediate past President of the Australian Academy of Science, said:

"Margaret was a dedicated supporter of science at the Academy and a shrewd investor in its outcomes. We shall miss her wise counsel, and remember her great generosity with gratitude."

Opportunities for scientists—March 2019

March 25, 2019

Academy opportunities

Download the 2020 Academy Awards fact sheet⁵¹

Honorific awards

Nominations are now open for the 2020 honorific awards, including career, mid-career and early-career awards.

Nominations close 1 May 2019.

See all honorific awards⁵²

Research awards

The Academy supports awards for research. Close to \$270 000 will be offered by the Academy in 2019 to support research in:

- natural science

- medical science
- endangered Australian native vertebrate animals
- environmental science
- history of science
- marine, soil and plant biology.

Applications open now and will close 1 June 2019.

See all research awards⁵³

Research conferences

The Academy supports research through the sponsorship of conferences that focus on rapidly developing fields of research.

Applications close 1 June 2019.

Research conference support includes:

- the Boden Research Conference in the biological sciences
- the Elizabeth and Frederick White Research Conference in the physical sciences
- the Fenner Conference on the Environment.

See all research conferences⁵⁴

Travelling fellowships

The Academy supports scientists through the awarding of travelling fellowships for the exchange of scientific ideas.

See all travelling fellowships⁵⁵

France and Europe EMCR Mobility Grants

The EMCR mobility grants provide up to \$5000 for Australian researchers to travel to France and Europe and work with leading researchers. The grants are supported by the Bede Morris and Rod Rickards Memorial Funds respectively.

Candidates must have a PhD degree at time of application, with the degree having been conferred no more than 15 years prior to submitting the grant application.

Applications close 8 April 2019.

More information on the France and Europe EMCR Mobility Grants⁵⁶

External opportunities

King Faisal International Prize

Prizes in different fields of science and medicine—US\$200,000.

Applications close 31 March 2019.

More information on The King Faisal International Prize⁵⁷

Breakthrough and New Horizons Prizes

The Breakthrough Prizes honour important recent achievements in three categories: fundamental physics, life sciences and mathematics. The 2020 Breakthrough Prize laureates will be celebrated in late 2019 at a globally televised ceremony. Laureates receive US\$3 million.

51 <https://www.science.org.au/files/userfiles/opportunities/documents/2020-academy-awards-flyer.pdf>

52 <https://www.science.org.au/opportunities-scientists/recognition/honorific-awards>

53 <https://www.science.org.au/opportunities/research-funding>

54 <https://www.science.org.au/opportunities/conference-and-lecture-funding>

55 <https://www.science.org.au/opportunities/travel/travelling-fellowships>

56 <https://www.science.org.au/opportunities/travel/grants-and-exchange/france-and-europe-emcr-mobility-grants>

57 <https://kingfaisalprize.org/science/>

In addition, up to three New Horizons in Mathematics Prizes and three New Horizons in Physics Prizes can be awarded each year to promising junior researchers who have already produced important work.

Nominations close 1 April 2019.

More information on the Breakthrough and New Horizons Prizes⁵⁸

Talking Science

Inspiring Australia NSW is seeking STEM researchers from all backgrounds to give a short talk in a library as part of National Science Week this August. Training and promotion provided via Sydney Science Festival and National Science Week.

Applications close 5 April 2019.

More information on Talking Science⁵⁹

Tall Poppy Science Awards

Recognising excellence in early-career researchers across all the sciences, alongside a passion and capacity to communicate science to the community. Nominations are open for scientists under 35 and with 2–10 years' postdoctoral experience.

Nominations close 10 April 2019.

More information on the Tall Poppy Science Awards⁶⁰

International Prize for Biology

Awarded to an individual who has made outstanding contribution to the advancement of research in fundamental biology. Field for 2019 is biology of insects—¥10 million.

Nominations close 19 April 2019.

More information on the International Prize for Biology⁶¹

See more external awards and prizes⁶²

Fellows update— March 2019

March 25, 2019

Honours and awards to Fellows

Professor Marilyn Renfree AO

FAA—Society for the Study of Reproduction's Carl G. Hartmann Award in recognition of a career of research and scholarly activities in the field of reproductive biology

Obituaries

Professor James Waldo Lance AO CBE

FAA FRACP FRCP

29 October 1926 to 20

February 2019

Professor James 'Jim' Lance was elected to the Academy in 1980 for his contributions to neurology, particularly disorders of the motor system and headache mechanisms. He was the first Professor of Neurology in Australia. Professor Lance founded the neurology departments at the Prince Henry and Prince of Wales Hospitals, and his research on migraines

led to work on serotonin and to the discovery of triptans—drugs used to treat migraines and cluster headaches.

Professor Lance was one of the founding members of the **Brain Foundation⁶³** which awards the James Lance Award for headache research each year. In 1977, Professor Lance was appointed a Commander of the Order of the British Empire (CBE) and in 1991, Officer of the Order of Australia. Professor Lance gave his time generously to the Academy, including serving on the Council and as Vice President.

Professor David Burke **FAA interviewed Professor Lance⁶⁴** for the Academy in 2010. The Sydney Morning Herald also published an **obituary⁶⁵**.



Professor James Lance.

58 <https://breakthroughprize.org/>

59 <https://inspiringnsw.org.au/2019/03/04/participate-in-a-library-talk/>

60 <http://www.aips.net.au/tall-poppies/nominations/submitted-a-nomination/>

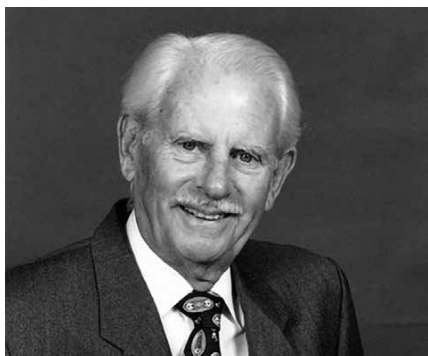
61 <https://www.jsps.go.jp/english/e-biol/nomination.html>

62 <https://www.science.org.au/opportunities/recognition/external-sources-recognition>

63 <https://brainfoundation.org.au/>

64 <https://www.science.org.au/learning/general-audience/history/interviews-australian-scientists/professor-james-lance-neurologist>

65 <https://www.smh.com.au/national/the-neurologist-who-put-migraine-on-the-map-20190227-p510mv.html>



Sir Rupert Myers.

*Sir Rupert Horace Myers KBE AO FAA FTSE
21 February 1921 to 21
February 2019*

Sir Rupert Myers was a metallurgist and was awarded his PhD in 1948 by Melbourne University. This is widely acknowledged as the first PhD in science from an Australian university. Sir Rupert then took up an appointment in the UK where he worked on projects for the atomic power program, including development of processes which produced the first plutonium metal in the UK and the first pure uranium powder. He was Foundation Professor of Metallurgy at the University of New South Wales (1952–81) and served as the third Vice-Chancellor of UNSW (1969–81). He has been Emeritus Professor at UNSW since 1981.

Sir Rupert's contributions to public life were extraordinary. He held numerous appointments on State and Commonwealth Government advisory committees, councils and committees of inquiry and chaired several bodies. He was also Director of the Prince Henry, Prince of Wales and Eastern Suburbs Hospitals (1966–83) and chaired well over a dozen company boards and foundations. Sir Rupert

was also a patron of the Sydney Opera House Trust (1976–83), the Winston Churchill Memorial Trust (since 2000), and the Australian Trust for Conservation Volunteers (since 1986).

Sir Rupert was appointed a Commander of the Order of the British Empire (CBE) in 1976 and then a Knight Commander in the Most Excellent Order of the British Empire (KBE) in 1981 in recognition of his 'service to education, science and the community'. He was appointed an Officer of the Order of Australia in 1995 for 'service to the promotion of innovation and commerce in the fields of science technology and engineering'.

In 1979, Sir Rupert was elected to the Australian Academy of Technological Sciences and Engineering and served as Vice-President (1985–88) and then President of ATSE (1989–94). He was elected by Special Election to the Australian Academy of Science in 1997.

*Professor Noel Sydney Hush AO
FAA FRS FRSN*

15 December 1924 to 20 March 2019

Since 1971, Professor Noel Hush worked at the University of Sydney where he founded a new department of Theoretical Chemistry, which became a centre for excellence in teaching from undergraduate to postdoctoral level and research. Upon his formal retirement in 1989, he was appointed Emeritus Foundation Professor of Theoretical Chemistry and he continued his full-time research. In 2002, he was also

appointed convenor of the Molecular Electronics Group at the university. Professor Hush also held numerous prestigious visiting positions at other universities in Australia, the United Kingdom and the United States of America.

Professor Hush was elected to the Academy in 1977 for his outstanding contributions to chemical physics and theoretical chemistry, and his research in the area of electron transfer. He was an active Fellow of the Academy and served on several committees and working groups.

Professor Hush was elected to the Royal Society in 1988 and to the National Academy of Sciences as a Foreign Associate in 2011. He was made an Officer of the Order of Australia in 1993 and received the Academy's Matthew Flinders Medal in 1994, the David Craig Medal in 2000 and the Welch Award in 2007. In 1999 he was elected as a Foreign Honorary Member to the American Academy of Arts and Sciences, and in 2014 he received the Ahmed Zewail Prize for Molecular Science.

Professor Hush was interviewed by Robyn Williams FAA in 2011. A transcript is available on the **Academy's website**⁶⁶.



Professor Noel Hush.

66 <https://www.science.org.au/learning/general-audience/history/interviews-australian-scientists/professor-noel-hush-theoretical>

Sir Michael Francis Atiyah OM FRS FRSE

FMedSci FAA FREng

22 April 1929 to 11 January 2019

Sir Michael Atiyah was widely regarded as one of the greatest mathematicians. He was known for his work in the areas of geometry and topology, and for his co-development of topological K-theory and the Atiyah-Singer index theorem.



Sir Michael Atiyah. Image credit: Gert-Martin Greuel - MFO/Wikimedia (CC BY-SA 2.0 de).

At the age of 32, Sir Michael was elected to the Royal Society in 1962. He served as President of the Royal Society from 1990 to 1995 and joined the Academy as a Corresponding Member in 1992. He was Master of Trinity College, Cambridge (1990–1997), the first Director of the Isaac Newton Institute for Mathematical Sciences, Cambridge and Chancellor of the University of Leicester (1995–2005).

Sir Michael received numerous honours and awards during his career, including the Fields Medal (1966), the Copley Medal of the Royal Society (1988) and the Abel Prize (with Isadore Singer, 2004). He was knighted in 1983, received the Order of Merit in 1992 and was made a Grand Officer of the Légion d'honneur in 2011.

The Head of School of Mathematics, University of Edinburgh has published a tribute and other obituaries are available at The Guardian and BBC News.