



## Message from the Chief Executive—June 2018

June 25, 2018

This month we warmly welcome Professor John Shine AC PresAA as the 19th President of the Australian Academy of Science.

The 64th annual Science at the Shine Dome certainly was a feast of science. I was inspired to hear about the extraordinary research being undertaken by the Academy's newest elected Fellows. In this month's newsletter you can learn about them, view videos about their science, and read about the Academy's achievements over the last year in our Annual Report.

Looking to the future, the Academy has launched the Aboriginal and

Torres Strait Islander Scientist Travelling Research Award. We strongly encourage Aboriginal and Torres Strait Islander PhD students and early- and mid-career scientists to apply. I encourage you to spread the word about this opportunity to your colleagues, friends and broader networks.

At the May AGM, Academy Fellows ratified the Academy's Code of Conduct which provides guidance to all involved in Academy activities about expected and appropriate behaviour. We hope it will encourage other STEM organisations to adopt best practice in this challenging area.

I hope you enjoy the June newsletter.

**Anna-Maria**



Anna-Maria Arabia

## Professor John Shine commences as President of Academy

May 24, 2018

Pioneering biochemist and molecular biologist Professor John Shine AC PresAA has commenced today as President of the Australian Academy of Science.

Professor Shine becomes the 19th President of the Academy. The founding President was Sir Marcus Oliphant AC KBE FAA FRS FTSE, elected in 1954.

"It's a great honour to be elected as President of a very prestigious organisation," Professor Shine told ABC Radio National when his Presidency was first announced.

"It's also a daunting task to help coordinate the Australian scientific effort, to advise government on sensible scientific policies and to be a source for government, policy makers, the community and business of unbiased, clear scientific facts," Professor Shine said.

"The outcomes from basic research being translated into something of

real value for the community are often long time frames, and those times frames are much longer than the political cycle. So often our political leaders require sudden instant answers to big, important questions and these take a long time.

"We need to develop a good consistent dialogue where there is mutual respect between all parties. We need to make sure we communicate science and the developments happening in

*... continued on page 2*



*Professor John Shine AC PresAA in the Ian Wark Theatre at the Shine Dome. Image: Bradley Cummings Photography*

science to the broader community because our political leaders follow what the broader community is telling them. If we have strong base community support then that will translate into the political response science needs," Professor Shine said.

Outgoing President, Professor Andrew Holmes AC FRS FTSE FAA welcomed Professor Shine as he handed over the Presidency.

"As with all roles of this nature, I conclude my presidency with some unfinished business. Our work to improve engagement with our political leaders and the Fellowship will never be done," Professor Holmes said.

### **About Professor Shine**

Professor Shine became world-renowned for a series of discoveries he made between 1975 and 1985 that furthered our understanding of genes. He cloned the first human hormone genes, and in the process developed sophisticated gene cloning techniques that helped transform the world of biotechnology.

In his earlier roles in the US biotechnology industry and as Chairman of CSL for the past six years, Professor Shine has a long-standing commitment to the translation of research discoveries into advances in health care for the social and economic benefit of the community.

Professor Shine was elected to the Academy in 1994. The Academy's home, previously known as Becker House, was named the Shine Dome in 2000 in recognition of a \$1 million donation made by Professor Shine to help restore the building, one of the most iconic and distinctive in Australia.

Professor Shine was also Executive Director of the Garvan Institute of Medical Research from 1990 to 2012. He still runs his own lab at the institute, investigating the gene mutations responsible for inherited kidney disorders.

Information about the Academy's past presidents [science.org.au/about-us/academy/president](http://science.org.au/about-us/academy/president)



## Academy launches Aboriginal and Torres Strait Islander Scientist Travelling Research Award

June 01, 2018

The Australian Academy of Science has launched an award to recognise research in the natural sciences by outstanding Aboriginal and Torres Strait Islander PhD students and early- and mid-career scientists.

The Aboriginal and Torres Strait Islander Scientist Travelling Research Award aims to support the expansion and growth of each scientist's research networks and international knowledge exchange, through visits to relevant international centres of research.

Australian Academy of Science President, Professor John Shine said

he was committed to increasing the Academy's cultural and gender diversity.

"Two annual awards of \$5,500 are available, with additional support provided to attend the Academy's Annual Science at the Shine Dome event," Professor Shine said.

Aboriginal medical doctor and researcher Professor Alex Brown, Chair in Aboriginal Health at the University of South Australia, also welcomed the award.

"It's a really good start. I'd be disappointed if that was as far as it went, however it's something that I'd be happy to continue to strongly encourage (as it's) an investment in the next generation of Aboriginal scientists," Professor Brown said. He made the comments at the Academy's Science at the Shine

Dome gala dinner, where the award was officially launched.

"We are out there. There are a lot of Aboriginal and Torres Strait Islander people coming through the ranks. Some of them early in their careers. Some are advanced but unknown and not talked about because they are busy getting on with the job."

Applications close on **Friday 27 July 2018**. Successful applicants will be announced in November for projects/travel to be carried out in 2019.

More information about the award [science.org.au/opportunities/travel/travelling-fellowships/aboriginal-torres-strait-islander-scientist-travelling-research-award](http://science.org.au/opportunities/travel/travelling-fellowships/aboriginal-torres-strait-islander-scientist-travelling-research-award)



Image courtesy of Kimberley Foundation Australia and Grahame Walsh Archive—Copyright owner reserves all rights.





The 21 Australian Academy of Science Fellows elected in 2018.

## 'GI Jennie', 'Ant Man', and the man who unboiled an egg to join Australia's science luminaries

May 22, 2018

An Australian scientist who has revealed the hidden world of ants has become the first person from the Northern Territory to be elected a Fellow of the Australian Academy of Science.

Dr Alan Andersen, the world's leading ant community ecologist, is one of 21 scientists\* who have been acknowledged today for their outstanding contributions to science. This list also includes mathematician Professor Geordie Williamson, who at age 36, becomes the youngest living Fellow of the Academy and Professor Anne Kelso, who has substantially strengthened Australia's position in global influenza virus surveillance and pandemic preparedness and is currently leading the National Health and Medical Research Council.

The new Fellows' pioneering contributions also include: revolutionising the way e-waste is recycled; changing the way we think about carbohydrate foods; research that led to the detection of gravitational waves; and new insights into how the immune system may be harnessed to devise new therapies for cancer and other diseases.

Australian Academy of Science President, Professor Andrew Holmes, congratulated the new Fellows for making significant and lasting impacts in their scientific disciplines.

"These scientists were elected by their Academy peers, following a rigorous evaluation process," Professor Holmes said.

"From 23 Founding Fellows in 1954, the election this year of our new Fellows brings our total number of living Fellows to 568. They join a prestigious group—six Nobel Prize winners and luminaries including Sir Mark Oliphant, Professor Nancy

Millis, Sir Douglas Mawson, Professor Frank Fenner and Sir David Attenborough."

The new Fellows are:

### Northern Territory

- Professor Alan Andersen, Charles Darwin University (ecologist)

### Australian Capital Territory

- Professor Anne Kelso, National Health and Medical Research Council (Chief Executive Officer)

### South Australia

- Professor Colin Raston, Flinders University (chemist)
- Professor Greg Goodall, Centre for Cancer Biology (medical researcher)

### Queensland

- Professor Kerrie Mengersen, Queensland University of Technology (statistician)
- Professor Bostjan Kobe, University of Queensland (structural biologist)

\* Professor Jennie Brand-Miller is known as 'GI Jennie' for her research on the glycemic index, and Professor Colin Raston received an Ig Nobel prize for creating a way to unboil an egg using his invention, the Vortex Fluidic Device.

## Western Australia

- Emeritus Professor David Blair, University of Western Australia (experimental physicist)
- Professor Kliti Grice, Curtin University (organic geochemist)

## Victoria

- Professor David Bowtell, Peter MacCallum Cancer Centre (medical researcher)
- Professor Joseph Trapani, Peter MacCallum Cancer Centre (medical researcher)
- Professor Peter Cawood, Monash University (geologist)
- Professor Lloyd Hollenberg, University of Melbourne (quantum physicist)
- Professor Rachel Webster, University of Melbourne (astrophysicist)

## New South Wales

- Professor Jennie Brand-Miller, University of Sydney (human nutrition researcher)
- Professor Geordie Williamson, University of Sydney (mathematician)
- Professor Christopher Dickman, University of Sydney (ecologist)
- Professor Dacheng Tao, University of Sydney (computer scientist)
- Professor Veena Sahajwalla, UNSW Sydney (materials scientist)
- Professor Richard Bryant, UNSW Sydney (medical scientist)
- Professor Martina Stenzel, UNSW Sydney (polymer chemist)
- Professor Noel Cressie, University of Wollongong (statistician)

Find out more about our new Fellows, including a video on each one [science.org.au/fellowship/fellows/new-fellows/fellows-elected-2018](http://science.org.au/fellowship/fellows/new-fellows/fellows-elected-2018)

## Queen's Birthday honours for seven Academy Fellows

June 13, 2018

Seven Academy Fellows have been recognised in this year's Queen's Birthday honours list, including four who have received Australia's highest accolade for their work, named as Companions in the General Division of the Order of Australia.

Professor Rose Amal AC FAA FTSE has been named as a Companion for her eminent service to chemical engineering, education as a researcher and academic, and to women in science as a role model and mentor.

Professor Geoffrey Burnstock AC FAA FRS has been recognised for eminent service to biological sciences in the field of pharmacology and toxicology as an academic, author and mentor.

Professor San Thang AC FAA FTSE has been honoured for eminent service to science, and to higher education, particularly in the fields

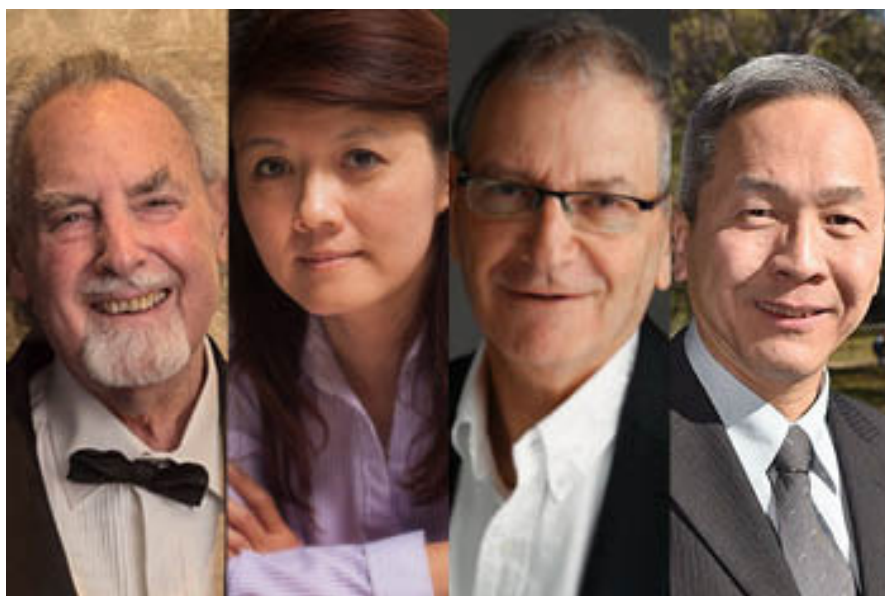
of polymer chemistry and materials science, as a research innovator and mentor.

The late Professor David Cooper AC FAA FRCP was awarded a posthumous accolade for his eminent service to medicine, particularly in the area of HIV/AIDS research, including the development of treatment therapies, and to health programs in South East Asia and the Pacific.

Three Academy Fellows have also been recognised as Officers in the General Division of the Order of Australia.

Professor Sever Sternhell AO FAA FRACI was named for his distinguished service to education in the field of organic chemistry, as an academic and researcher, and to scientific institutions.

Professor Halina Rubinsztein-Dunlop AO FAA was recognised for her distinguished service to laser physics and nano-optics as a researcher, mentor and academic, to the promotion of educational programs, and to women in science.



*Geoffrey Burnstock, Rose Amal, the late David Cooper and San Thang were named as Companions of the Order of Australia in this year's Queen's Birthday honours list.*

Professor James McCluskey AO FAA was acknowledged for his distinguished service to medical education, as an academic in immunology, and through research into immune systems response to viruses.

## Academy to deliver new initiatives for women and girls in STEM

May 21, 2018

The Australian Academy of Science has welcomed a commitment of \$600,000 from the Australian Government to develop a 10-year roadmap for sustained increases in engagement and participation of girls and women in science, technology, engineering and mathematics (STEM).

The funding commitment was made by Senator Michaelia Cash and Kelly O'Dwyer MP this week at Deakin University.

"The Government is funding the Academy of Science to now put together that decadal plan. And Kelly and I look forward to receiving it by the end of this year," said Senator Cash.

Academy President, Professor Andrew Holmes, said Australia still has a long way to go as a nation when it comes to achieving equity in opportunities for girls and women to pursue STEM education and careers.

"The barriers to equity in STEM are compounded by the gendered portrayal of science in the media, and a preponderance of male scientists on STEM committees and boards across government, academia and industry," he said.



*From left: Ms Julia Banks MP, the Hon Kelly O'Dwyer MP, Professor Karen Hapgood from Deakin University, Academy Fellow Professor Maria Forsyth from Deakin University, Minister for Jobs and Innovation, Senator Michaelia Cash, and Ms Margaret Hansford from Girl Guides Victoria*

"Therefore, we strongly welcome this initiative, along with the \$250,000 Women in STEM and Entrepreneurship grant that will enable us to deliver a national '#WomenInSTEMOnline' online portal for female STEM professionals," Professor Holmes said.

"The Academy has a strong track record of delivering long term strategic plans for a range of science disciplines. We look forward to delivering a plan for women and girls in science that will identify and set priorities for the next decade and outline strategies to achieve them."

The '#WomenInSTEMOnline' project will promote gender equity by improving female participation in STEM conferences and panels, science and technology media, government and industry committees and boards and STEM award nominations and applications.

The online portal will comprise a curated directory of 1000+ industry, academic and professional women in STEM, training and support for women on presentations, media appearances, and award

applications, a national Women in STEM symposium and a gender equity toolkit for conference organisers, businesses and agencies.

The Australian Academy of Science will deliver the #WomenInSTEMOnline project in collaboration with the CSIRO, Australian Science Media Centre and Science & Technology Australia.

## Fellow appointed NSW Chief Scientist and Engineer

May 29, 2018

Academy Fellow and world leader in field robotics Professor Hugh Durrant-Whyte has been appointed the next Chief Scientist and Engineer for New South Wales.

Professor Durrant-Whyte is currently Chief Scientific Adviser for the UK Ministry of Defence. He will start his new role in September.

He is a pioneer in autonomous robotics who is known for his work in delivering automated container terminals at Port Botany, and he has also been involved in developing autonomous solutions for mine sites.





*Academy Fellow Professor Hugh Durrant-Whyte will be the next NSW Chief Scientist and Engineer.*

One of his major tasks will be to draw together business, research and government to drive innovation in the New South Wales, while also providing independent advice.

Professor Durrant-Whyte was recently Director of the Centre for Translational Data Science at the University of Sydney, formerly Chair of the NSW Government's Innovation and Productivity Council, and formerly head of National ICT Australia, now CSIRO's Data61.

He has won numerous awards for his work including being named the 2010 NSW Scientist of the Year.

Professor Durrant-Whyte was elected a Fellow of the Academy in 2009. He is also a Fellow of the Royal Society and of ATSE.

## **RMIT scientist's 'electronic skin' recognised**

June 05, 2018

A talented local scientist's work to develop a form of 'electronic skin' that monitors the environment and

the human body has been recognised by the Australian Academy of Science.

The Academy nominated Associate Professor Madhu Bhaskaran from RMIT University for the prestigious APEC Science Prize for Innovation, Research and Education (ASPIRE), valued at US\$25,000. The ASPIRE Prize will be announced at the 12th APEC PPSTI Meeting in Papua New Guinea in August 2018.

ASPIRE recognises young scientists from Asia-Pacific Economic Cooperation (APEC) member economies who have demonstrated a commitment to excellence in innovation, research and education.

Associate Professor Bhaskaran is Australia's 2018 nominee for ASPIRE for her work in developing stretchable electronics and sensors with applications such as detecting dangerous gases in mines, reducing skin cancer with widespread use of UV sensors or smart contact lenses which can analyse tears for biomarkers.

The Academy also recognised the work of two runners up: Professor Michael Milford from the Queensland University of Technology (QUT) and Professor Igor Aharonovich from the University of Technology Sydney (UTS).

Professor Milford's research covers robotics, neuroscience and computer vision. His work looks at how the brain performs tasks like



*Associate Professor Bhaskaran is Australia's 2018 nominee for ASPIRE.*

navigation and perception, with his findings leading to applications across intelligent transport, mining and space exploration.

Professor Aharonovich's breakthrough research on next generation technologies spans healthcare, energy, communications and information. His work on atomically thin materials will support the development of revolutionary techniques to enable early detection of many diseases.

Since 2011, ASPIRE has recognised scientists under the age of 40 who are working in APEC member economies and have demonstrated a commitment to excellence in scientific research and cooperation with other APEC scientists.

More information, including past Australian finalists [science.org.au/opportunities/travel/grants-and-exchange/apec-science-prize-innovation-research-and-education-aspire](http://science.org.au/opportunities/travel/grants-and-exchange/apec-science-prize-innovation-research-and-education-aspire)

## Science at the Shine Dome celebrates great Australian science

June 25, 2018

The Academy's celebration of science held in May each year, Science at the Shine Dome, saw 400 attendees hear from 57 speakers over three days.

The event kicked off with the Academy's annual symposium, which looked at the role of science in predicting, mitigating, responding to and recovering from natural hazards and weather events. The first day also saw 21 new Fellows admitted to the Academy in recognition of their work in science.

On Day Two, the Academy's newly elected Fellows presented their science, starting with Dr Alan Andersen, the world's leading ant community ecologist and the first Fellow from the Northern Territory. Attendees also heard how materials scientist, Professor Veena Sahajwalla, is revolutionising recycling.

The red carpet (which was actually Academy blue) was rolled out on Wednesday evening with the Academy's annual gala dinner. Writer and broadcaster Virginia Haussegger interviewed 2018 Australian of the Year, Professor Michelle Simmons FAA, about her science career so far and the quest to build a quantum computer.

The gala dinner also saw the launch of the Academy's Aboriginal and Torres Strait Islander Scientist Travelling Research Award. The award recognises research in the natural sciences by outstanding Aboriginal and Torres Strait Islander PhD students and early- and mid-career scientists.

The final day saw outgoing President, Professor Andrew Holmes AC PresAA FRS FTSE, give his final President's address. He was also interviewed by Academy Fellow Robyn Williams about his time as President. The interview was broadcast on ABC's The Science Show [abc.net.au/radionational/programs/scienceshow/coms-improved,-but-gender-equity-an-ongoing-challenge-for-austr/9825846](http://abc.net.au/radionational/programs/scienceshow/coms-improved,-but-gender-equity-an-ongoing-challenge-for-austr/9825846).

On the final day of the event, 15 researchers received highly sought-after honours for outstanding achievements in early- and mid-career research or across a lifetime

of work. Associate Professor Tracy Ainsworth from James Cook University received the Dorothy Hill Medal for her research, which has improved our understanding of how stress responses and diseases occur in corals. More about the recipients of the Academy's 2018 awards [science.org.au/news-and-events/news-and-media-releases/bright-stars-australian-science-recognised-academy-awards](http://science.org.au/news-and-events/news-and-media-releases/bright-stars-australian-science-recognised-academy-awards).

Videos on each of the 2018 New Fellows and Honorary award winners are available on the Academy's YouTube channel [youtube.com/user/ScienceAcademyAu/videos](http://youtube.com/user/ScienceAcademyAu/videos).

You can also see and share photos from the event <http://files.bradleycummingsphotography.com.au/b/bgvzNOGlmyES1vBODXVM> (please credit Australian Academy of Science).

### Event partners

The Academy is grateful to the following organisations that partnered with us to make Science at the Shine Dome 2018 such a successful event.

#### Platinum Partner

- Science and Technology, Department of Defence

#### Gold Partners

- University of Melbourne
- Australian National University

#### Silver Partners

- Department of Industry, Innovation and Science
- University of Queensland
- CSIRO
- Monash University



#### *Gala Dinner Partner*

- University of South Australia

#### *Parent and Carer Partner*

- University of Sydney

#### *Symposium Partner—Platinum*

- Bushfire and Natural Hazards CRC

#### *Symposium Partners—Gold*

- Bureau of Meteorology
- UNSW Sydney

#### *Symposium Partners—Silver*

- QUT
- Cyclone Testing Station, James Cook University

#### *Venue Partner*

- National Gallery of Australia

#### *Wine Partner*

- Jirra Wines at Jeir Station

#### *Coffee Partner*

- NCI Australia

#### *EMCR Luncheon Partner*

- ARC Centre of Excellence for Electromaterials Science

#### *EMCR Partners*

- CSIRO
- Macquarie University
- James Cook University
- University of Newcastle
- University of Western Australia
- University of Technology Sydney
- Telethon Kids Institute
- Walter and Eliza Hall Institute of Medical Research
- Griffith University Institute for Glycomics
- Centre of Excellence for Environmental Decisions
- Curtin University

## International participants build networks at Science at the Shine Dome

June 25, 2018

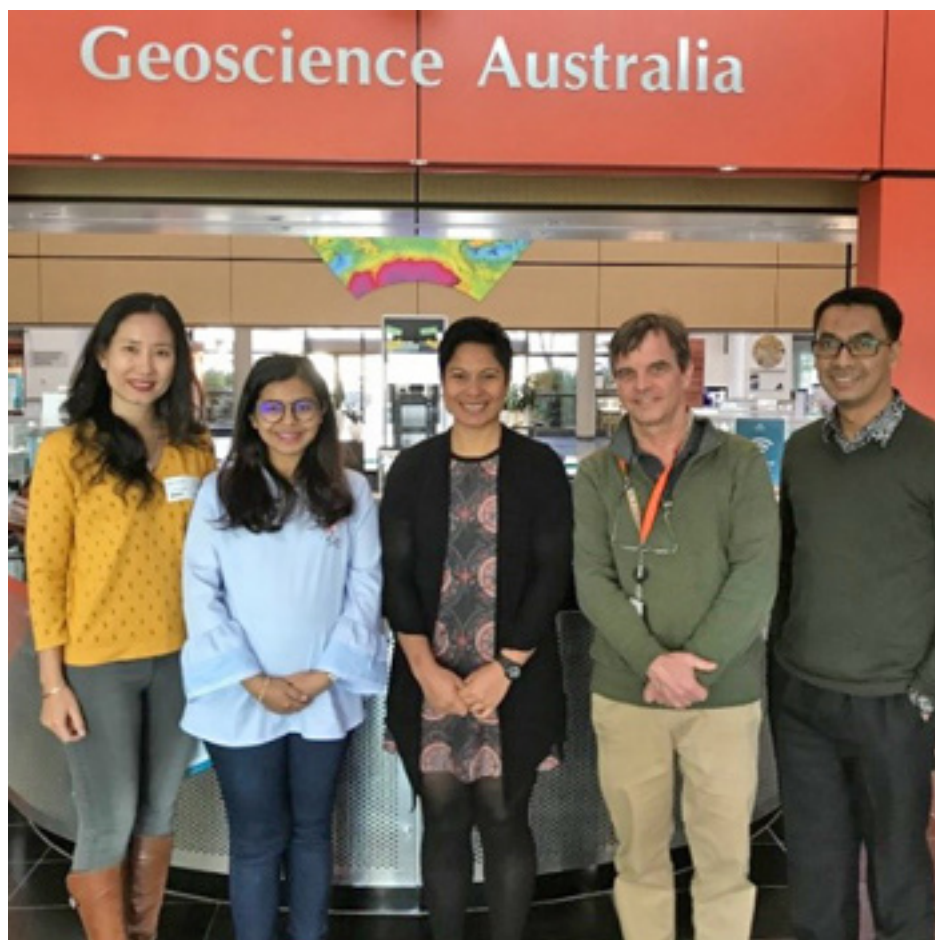
Four international early- and mid-career researchers with backgrounds in disaster risk management from South-East Asia and the Pacific attended this year's Science at the Shine Dome program.

Dr Tammy Tabe, Lecturer on climate change impacts, vulnerability and adaptation at the University of the South Pacific in Fiji, Dr Heri Kuswanto from the Department of Statistics of the Institute of Technology Sepuluh Nopember, Indonesia, Dr Fasha Muhamad from the Southeast Asia Disaster Prevention Research Initiative,

National University of Malaysia, and Dr Pahm Viet Hoa from the Ho Chi Minh City Institute of Resources Geography, Vietnam Academy of Science and Technology Vietnam, had the opportunity to meet and network with hundreds of attendees at the event.

As part of their visit to Canberra, the Academy organised a day of site visits for the four participants to the Research School of Earth Sciences at the Australian National University and to the Geoscience Australia. The visits were hosted by Professor Phil Cummins from the ANU and Geoscience Australia.

It is expected that this event provided the young researchers the opportunity to establish new contacts and networks with their peers, gain knowledge and



*Professor Phil Cummins (second from right) with (from left) Dr Pahm Viet Hoa, Dr Fasha Muhamad, Dr Tammy Tabe and Dr Heri Kuswanto at Geoscience Australia.*

exchange ideas in hazards and disaster risk management. This activity also enables the Academy to strengthen its links with counterpart academies and organisations in the region who nominated these young scientists. The visits were funded by the Academy.

## Academy's achievements highlighted in annual report

June 25, 2018

The Academy's recently published annual report has highlighted the organisation's many achievements made in 2017.

Driven by the priorities of Fellows and led by the Council and Executive Committee, major achievements included the development of a sophisticated digital communications capability focused on video production and social media, and the launch of two plans: space science and technology, and agricultural sciences.

Global activities included the delivery of the first round of the Australian Government's Regional



Collaboration Programme, the development of the 'Canberra Declaration' to establish an International Brain Initiative, raising the importance of global health with the G20 as part of the S20 Science Forum, and support for international science organisations, regional connections and emerging scientists.

The Academy delivered a national public speaker series on the science of polymers, and published a review of Australian climate science capability.

Twenty-one leading scientists were elected as new Fellows, and the Academy welcomed two Corresponding Members.

Also reported are the increasing impacts of the Academy's primary and high school science and maths education programs, with a focus on providing resources and professional learning for thousands of teachers.

Read more about the Academy's achievements in the 2017 Annual Report [annualreport2017.science.org.au/](http://annualreport2017.science.org.au/).

## Academy hosts International Council for Science strategy meeting

June 25, 2018

The Academy is the Australian member of the International Council for Science (ICSU), a non-government organisation with a global membership of all scientific unions, interdisciplinary science bodies and 120 national scientific bodies representing 140 countries.

The ICSU and the International Social Science Council (ISSC) will merge in July to create a unified, international organisation, the International Science Council, whose vision will be to advance all sciences as a global public good.

In May, the Academy hosted a meeting of Australians who are



Australians active in the ICSU and its member organisations met recently to prepare for the ICSU-ISSC merger in July.



active in the ICSU and its member organisations. The meeting provided an opportunity to discuss the upcoming inaugural General Assembly of the new International Science Council and how Australia can better coordinate its international engagement in this and related bodies. Find out more about Academy's international links [science.org.au/supporting-science/international-representation/international-council-science](https://www.science.org.au/supporting-science/international-representation/international-council-science).

We'll publish more information about the merger as it becomes available.

## Decadal plan to address nutrition challenges

June 25, 2018

The National Committee for Nutrition has received Australian Research Council funding as part of the Learned Academies Special Projects scheme to develop a Decadal Plan for Nutrition Science in Australia.

The plan aims to address the complex health and environmental

challenges associated with changes in food production and consumption. Since the industrial revolution, our understanding of human diets has lagged behind the rate of change. This project will identify ways to better integrate knowledge across nutrients, foods, meals, diets and dietary patterns to understand balance rather than single nutrients or commodities.

The National Committee is looking for community input to the plan. A national consultation process is about to start, with the first consultation workshop being held in Canberra on 20 June. For More information on the plan, or register for a consultation workshop [science.org.au/support/analysis/decadal-plans-science/decadal-plan-nutrition-science-australia](https://www.science.org.au/support/analysis/decadal-plans-science/decadal-plan-nutrition-science-australia).

## Social media supports credible science push

June 25, 2018

The Academy's social media communications have continued to gain in popularity. Our Facebook

followers have grown in number from 9000 in October last year to around 400,000, showing that people are keen to see more credible science news online. And it's not just social media—even traditional media outlets are using our videos to accompany their website stories.

## Socially intelligent dolphins

We revealed on World Oceans Day (8 June) that people might have more in common with dolphins than previously thought. [facebook.com/AustralianAcademyofScience/videos/1688651501212374/?t=0](https://www.facebook.com/AustralianAcademyofScience/videos/1688651501212374/?t=0)

## Walking for a longer life?

We all know that walking is good exercise for the majority of people, and is something that can be built into daily life. Any walking is good, but the faster you walk the greater the health benefits. We published this breaking news video about recent research findings on 1 June and it was picked up by major media outlets Fairfax and The Conversation. [facebook.com/AustralianAcademyofScience/videos/1682359295174928/?t=0](https://www.facebook.com/AustralianAcademyofScience/videos/1682359295174928/?t=0)

## Science in the federal budget

The release of the federal budget isn't necessarily something that we all sit down and watch—but the implications of the budget each year reach far and wide. In May we published a video on social media on what the budget promises for science, just hours after the budget was released. It has been viewed more than 100,000 times so far. [facebook.com/AustralianAcademyofScience/videos/1659561194121405/?t=0](https://www.facebook.com/AustralianAcademyofScience/videos/1659561194121405/?t=0)



*A plan for nutrition science in Australia aims to address the challenges associated with changes in food production and consumption. Photo: Providence Doucet on Unsplash*

## An Australian space agency

And how exciting is it that Australia is officially going to invest in the space race? Announced in the budget was \$41 million for a space agency and \$260 million for new satellite and GPS capabilities.

<https://www.facebook.com/AustralianAcademyofScience/videos/1659302107480647/?t=0>

## New Fellows, awardees, and Science at the Shine Dome

If you couldn't make it to the Academy's annual celebration of science this year, Science at the Shine Dome, we produced 48 videos on the new Fellows, awardees, the symposium and other aspects of this celebration of Australian science.

Find out more about Science at the Shine Dome and the videos we produced [science.org.au/academy-newsletter/june-2018-117/science-shine-dome-celebrates-great-australian-science](http://science.org.au/academy-newsletter/june-2018-117/science-shine-dome-celebrates-great-australian-science)

## Success of Science by Doing due to expert contributors

June 25, 2018

The Academy's long-running and widely used education program for high school science, Science by Doing, owes its success to the many expert contributors to the program.

One of those contributors is Dr Jim Woolnough, the program's Education Specialist since 2013. He wrote the physics curriculum units Energy, Big Systems, and Motion and Energy Transfer, and has helped revise most of the units to improve their operability and learning



Dr Jim Woolnough has been the Education Specialist for Science by Doing since 2013.

“ I think the resources and the whole Science by Doing program is quite literally the best resource available for interactive and meaningful science teaching. I wanted to thank you and your team for designing everything in this magnificent set of curriculum activities. ” Maths and science teacher, Queensland

effectiveness. Dr Woolnough's broad curriculum knowledge and extensive teaching experience have been invaluable to the broad adoption of resources across Australia.

And the figures speak for themselves. 50,000 new registrations were received for Science by Doing in 2017, an increase of 45% over 2016. The total number of registrations is now 180,000. Two in every three high school science teachers are registered for the program.

In 2017, users of Science by Doing downloaded an average of 9 terabytes (9 billion kilobytes) of

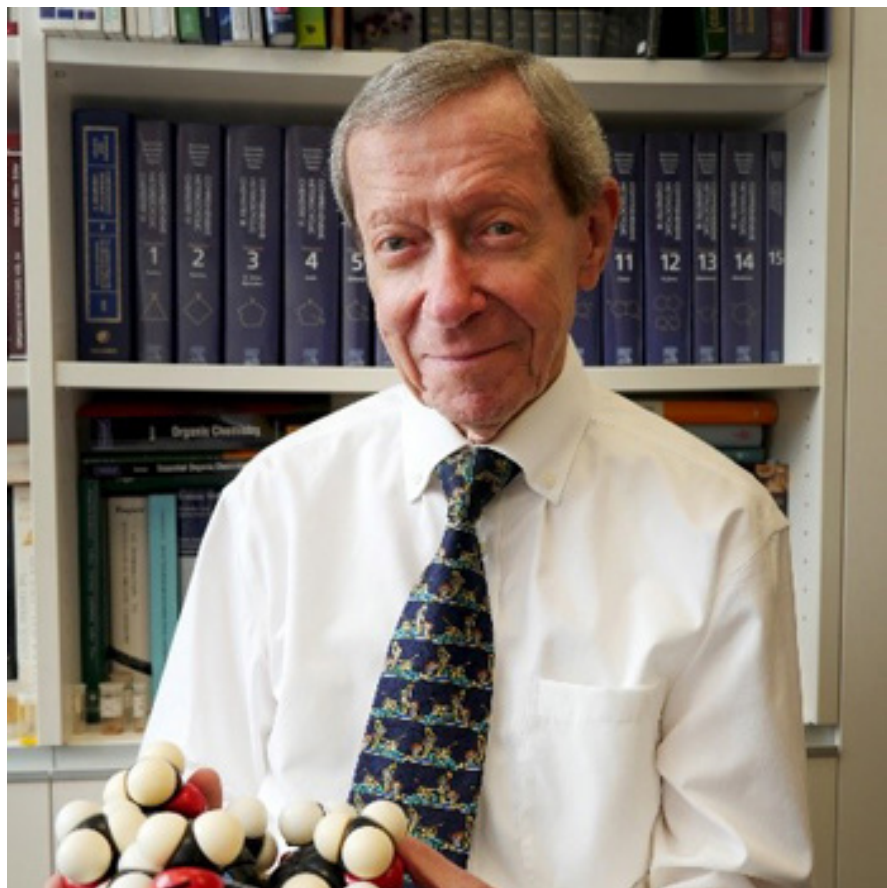
curriculum resources each month. It's estimated that using Science by Doing resources results in a 50 per cent increase in student group work, cooperative learning and student investigation.

## David Black delivers lectures aimed at younger researchers

June 25, 2018

The 2017 recipient of the Academy's David Craig Medal and Lecture, Professor David Black AO FAA, has delivered nine lectures across Australia as part of his award.





*Professor David Black delivered nine lectures across Australia as part of the David Craig Medal and Lecture.*

Professor Black, who will step down as Secretary-General of the International Council for Science in July, is recognised as one of the world's leading heterocyclic chemists, having made major contributions to organic chemistry in the general fields of heterocyclic chemistry, coordination chemistry and natural products.

His lectures were aimed mainly at graduate students and younger researchers, were very well received, and encouraged stimulating discussion.

'I greatly enjoyed the opportunity to meet and discuss chemistry with many academics, especially the younger early- and mid-career researchers. Organic chemistry research in Australia is in a very healthy state and the future is in excellent hands,' Professor Black said.

As the David Craig award relates to long-term career research, Professor Black selected a theme that had run through his research for many years and only recently achieved the desired outcomes. Interestingly, the work uncovered new issues that were not predicted at the start of the research. In many instances, according to Professor Black, the success of the work depended on the ability of graduate students to pay careful attention to unexpected observations. He also encouraged graduate students to try unusual experiments on the off-chance of success—although these usually fail, occasionally there are some important outcomes.

The David Craig Medal and Lecture is made in honour of the outstanding contribution to chemical research of the late

Emeritus Professor David Craig AO FAA FRS, and recognises contributions of a high order to any branch of chemistry by active researchers.

## Geoffrey Burnstock succeeds against the odds

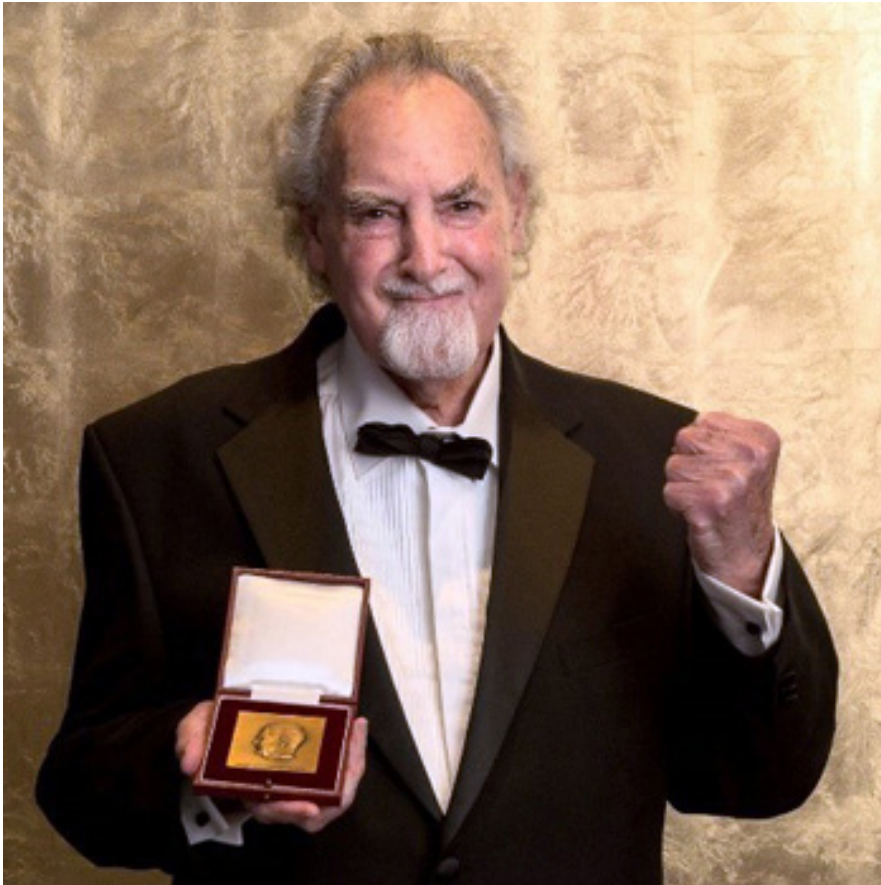
June 25, 2018

Professor Geoffrey Burnstock has been awarded the Macfarlane Burnet Medal and Lecture, the Academy's highest award in the biological sciences.

Professor Burnstock, an Academy Fellow, recently returned to the University of Melbourne to continue his scientific investigations after a 42-year career at University College London. He presented the Macfarlane Burnet Lecture on 'The Discovery and Development of Purinergic Signalling' at the Academy's Science at the Shine Dome event in May.

In his lecture, Professor Burnstock presented a story of success against the odds. Coming from a 'boxing family' in the UK, he explained how immigrating to Australia gave him the opportunity to propose a revolutionary hypothesis, which most scientists did not accept for the next 20 years. However, with persistent accumulation of new experimental evidence, his hypothesis was finally accepted. It is currently leading to exciting new therapeutic developments through the research of thousands of medical scientists in many countries.

Professor Burnstock is internationally recognised for the discovery of purinergic neurotransmission (i.e. ATP as an



*Professor Geoffrey Burnstock has succeeded against the odds.*

extracellular signalling molecule), a novel signalling system between cells that is of central importance for many biological processes. His 1976 discovery challenged established concepts of the biology of cell messengers and neurotransmission.

More recently, he has focused on a cell communication process that takes place in metabolism known as purinergic signalling. This research has had an impact on the understanding of pain mechanisms, bone formation and skin and bladder cancer and kidney disease.

He continues to be an inspiration for many and his vision and creativity have enabled and driven the research of a very large number of laboratories around the world. He has had a very large impact on this field by his initial discovery and its elaboration, involving challenge to

Dale's principle of 'One nerve terminal—one transmitter'.

## 2018 Annual Giving Appeal

Why do we do what we do? Because science matters, because we can leverage science for national and global benefit, and because science improves our wellbeing, our environment and our prosperity.

We invite you to join our growing list of donors to the Academy. You can become the how in our story. Your donation today, through the 2018 end of financial year appeal, be it large or small, will contribute to the ongoing work of the Academy and not only guarantee the Academy's independence, but allow the Academy to continue to foster, celebrate and promote scientific excellence for generations to come.

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ACADEMY OF SCIENCE**  
**A FELLOWSHIP OF  
SCIENTIFIC LEADERS**  
**A COMMUNITY OF  
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Your end of financial year donation will change lives and will mean the world to those who benefit from your support [science.org.au/donate](https://science.org.au/donate).

If you have any questions please call Isobel Griffin on +61 (0)2 6201 9471 who is able to speak with you and assist in any way.

## Recent contributions to government policies—February to June 2018

June 25, 2018

The Academy regularly provides the Australian Government with feedback on important policy measures. Following is a round-up of the Academy's submissions since February.

See all Academy submissions in full [science.org.au/supporting-science/science-policy/submissions-government](https://science.org.au/supporting-science/science-policy/submissions-government)

### Review of the Foreign Influence Transparency Bill 2017

Given the international nature of science and collaboration, the Academy expressed concern that the reach of the legislation and its potential impacts on the conduct



and communication of legitimate scientific research, conducted in the public interest, do not appear to have been adequately considered. Without clearer exemptions the draft legislation would negatively impact on the conduct of research and on business innovation that relies on science and research.

### **Consultation on the Draft Revision of Australia's Biodiversity Conservation Strategy**

The Academy had concerns about the extreme brevity of the revised strategy, and made six recommendations to improve the revision.

### **Senate Inquiry into the Sustainable Development Goals**

The Academy and Future Earth Australia made a joint submission to this inquiry, stating that Australia's progress against the Sustainable Development Goals is mixed, and that there are many opportunities to improve understanding and implementation of the SDGs.

### **Inquiry into the management and use of Commonwealth environmental water**

The Academy's National Committee for Geographical Sciences made a submission into this inquiry, stating that it considers the recent water reforms in the Murray Darling Basin to be critical to the ongoing environmental health of the region and downstream areas. For this reason, it is critical these reforms be informed by the best and most rigorous scientific assessments, and their impacts are studied in detail and used to inform future water policy.

### **Consultation on new breeding techniques**

The Australian Academy of Technology and Engineering and the Australian Academy of Science made a joint submission to Food Standards Australia New Zealand on foods derived using new breeding techniques, which are technological developments arising from new understandings around breeding, genetics and genetic modification.

### **Joint Inquiry into Canberra's National Institutions**

In its submission to this inquiry, the Academy stated it would like to see Australian science represented more completely among Canberra's national institutions. For example, there is no national natural history museum, there is no permanent national facility for collections of historical scientific instruments and artefacts, and there is no national facility dedicated to commemorating and communicating Australia's history of scientific endeavour and achievement. The establishment of such facilities would play a vital role in evoking a sense of national pride and helping the public engage with critical, science-based issues.

### **Senate Inquiry into Mitochondrial Donation and Related Matters**

The submission to this inquiry was prepared by the Academy's National Committee on Cellular and Developmental Biology, the National Committee on Biomedical Sciences, and the National Committee on Medicine and Public Health, and includes seven recommendations.

### **Third Phase Consultation on the Gene Technology Scheme**

The Australian Academy of Technology and Engineering and the Australian Academy of Science made a joint submission to the review of the National Gene Technology Scheme 2018 (Third Phase Consultation). The Academies were generally supportive of the Review, which covers many aspects of gene technology regulation in Australia and synthesises a number of diverse perspectives from across the community. They consider the use of gene technology applications with a history of safe use and no reasonable apprehension of elevated risk should have their regulatory burden reduced.

### **Science and Technology agreements with Italy and Brazil**

The Academy made submissions in support of agreements between the Australian Government and the governments of Italy and Brazil, due to our strong connections in science and education.

### **Kosciuszko Wild Horses Heritage Bill 2018**

The Academy wrote to NSW Deputy Premier the Hon John Barilaro MP, expressing great concern at the proposed legislation regarding the management of feral horses in Kosciuszko National Park. The Academy stated that the Heritage Bill places a priority on a single invasive species over many native species and ecosystems, some of which are found nowhere else in the world. It is incompatible with the principles that underpin Australia's world-leading protected area system, and with our

commitments as a signatory to the Convention on Biological Diversity.

## Opportunities for scientists—June 2018

June 25, 2018

### Academy opportunities

#### *Aboriginal and Torres Strait Islander Scientist Travelling Research Award*

The Aboriginal and Torres Strait Islander Scientist Travelling Research Award aims to support the expansion and growth of each scientist's research networks and international knowledge exchange, through visits to relevant international centres of research.

More information on the Aboriginal and Torres Strait Islander Scientist Travelling Research Award [science.org.au/opportunities/travel/travelling-fellowships/aboriginal-torres-strait-islander-scientist-travelling-research-award](http://www.science.org.au/opportunities/travel/travelling-fellowships/aboriginal-torres-strait-islander-scientist-travelling-research-award)

Applications close **27 July 2018**.

Successful applicants will be announced in November for projects/travel to be carried out in 2019.

#### *Falling Walls Lab Australia 2018 (audience)*

The third Falling Walls Lab Australia will take place on 11 September 2018, 11am-5pm at the Shine Dome in Canberra, hosted by the Australian Academy of Science in partnership with the Embassy of Germany in Canberra and the German–Australian Chamber for Industry and Commerce.

Falling Walls Lab Australia will be an inspiring innovation forum for 20 young Australian researchers, social scientists, academics, entrepreneurs

and professionals across all disciplines. The Lab provides a platform for each participant to present their research work, business model, innovative project, social initiative or idea in just 3 minutes, on stage in front of peers and a distinguished audience from academia and business.

This event is open to anyone to attend as audience, and entry is free. However, we suggest you book early as seats are limited and will fill quickly. Book your seat by

**31 August 2018**

### External opportunities

#### *BBVA Foundation Frontiers of Knowledge Awards*

Awarded in basic sciences (physics, chemistry, mathematics), biology and biomedicine, information and communication technologies, ecology and conservation biology, climate change – €400 000.

More information on the BBVA Foundation Frontiers of Knowledge Awards [www.bbva.com/en/frontiers-knowledge-awards-celebrate-their-10th-anniversary/](http://www.bbva.com/en/frontiers-knowledge-awards-celebrate-their-10th-anniversary/)

Applications close **28 June 2018**

#### *Hideyo Noguchi Africa Prize—JSPS*

The prize aims to honour individuals or organisations with outstanding achievements in the fields of medical research or medical services – 100 million Yen.

More information on the Hideyo Noguchi Africa Prize [www.jps.go.jp/english/e-noguchiafrica/](http://www.jps.go.jp/english/e-noguchiafrica/)

Applications close **31 July 2018**

#### *2019 Australian of the Year Awards*

Celebrates the contributions of those leading Australians who excel

in their chosen field or who make outstanding achievements for the betterment of others.

More information on the 2019 Australian of the Year Awards [www.australianoftheyear.org.au/nominate/](http://www.australianoftheyear.org.au/nominate/)

Applications close **31 July 2018**

See more external awards and prizes [science.org.au/opportunities/recognition/external-sources-recognition](http://www.science.org.au/opportunities/recognition/external-sources-recognition)

## Fellows update—June 2018

June 25, 2018

### Honours and awards to Fellows

#### *Queen's Birthday honours*

#### **Professor Rose Amal AC FAA**

**FTSE**—Companion in the General Division of the Order of Australia

#### **Professor Geoffrey Burnstock AC**

**FAA FRS**—Companion in the General Division of the Order of Australia

#### **Professor San Thang AC FAA**

**FTSE**—Companion in the General Division of the Order of Australia

The late **Professor David Cooper AC FAA FRCP**—Companion in the General Division of the Order of Australia

#### **Professor Sever Sternhell AO FAA**

**FRACI**—Officer in the General Division of the Order of Australia

#### **Professor Halina Rubinsztein-**

**Dunlop AO FAA**—Officer in the General Division of the Order of Australia

#### **Professor James McCluskey AO**

**FAA**—Officer in the General Division of the Order of Australia



More about the Queen's Birthday honours [science.org.au/news-and-events/news-and-media-releases/queens-birthday-honours-seven-academy-fellows](http://science.org.au/news-and-events/news-and-media-releases/queens-birthday-honours-seven-academy-fellows)

#### *Other honours*

**Professor Ron Ekers FAA FRS**—

Foreign associate, National Academy of Sciences, USA

**Professor Geordie Williamson**

**FAA FRS**—Fellow of the Royal Society

**Professor Patrick De Deckker AM**

**FAA**—Officer of the Order of Leopold II, Belgium

**Professor Bruce Stillman AO FAA**

**FRS** (Corresponding Member)—

Honorary Doctor of Science, Clarkson University, USA

#### **Obituary**

*Dr Guy Kendall White AM FAA*

31 May 1925 to 22 May 2018

Dr Guy White was elected to the Academy in 1970 and was distinguished for his experimental contributions to knowledge of the transport properties, thermal capacities and thermal expansions of solids. His studies of electrical and thermal conduction of metals, alloys, semi-conductors and solidified inert gases revealed the contributors of lattice and electrons and the roles of defects and mutual interaction of lattice waves. Renown as an outstanding experimenter, his

book, *Experimental Techniques of Low Temperature Physics*, has been translated into several languages and is a standard text in the field.

In recognition of his contributions, Dr White received many prestigious prizes and awards including the Yeram Touloukian Award from the American Society of Mechanical Engineers and the David Syme Research Prize from the University of Melbourne. He was a Fellow of the Institute of Physics (UK) and a Foundation Fellow of the Australian Institute of Physics. Upon his official retirement in 1990 as Chief Research Scientist, CSIRO Division of Applied Physics, Dr White was made an Honorary Fellow of the CSIRO Division of Materials Science and Engineering. He received an Honorary Doctorate from the University of Wollongong in 1994, and was a Visiting Fellow at the ANU's Research School of Physical Sciences and Engineering from 2000 to 2001. In 2000, he was appointed to the Order of Australia in the General Division (AM) for services to low temperature physics.

Dr White was actively involved in the Academy. He joined the Council in 1977 and served as Vice-President (Physical Sciences) from 1979 to 1980. Over many years, he contributed to the Academy's National Committees, most notably the Committee for Data in Science and Technology (CODATA), which



*Dr Guy White*

he also chaired. He also represented the Academy on the National Commission of the UNESCO Committee for Scientific Information. Dr White's other contributions included his service to the Academy's international exchange programs and to the Editorial Board of *Historical Records of Australian Science*. As Chair of the NSW Regional Group during the early 1980s, he hosted a dinner for Fellows with then President of the Royal Society, Sir Andrew Huxley. He also served on the Sectional Committee responsible for Applied Physical Sciences, including as Chair of the Committee from 1998 to 2000.

Dr White was interviewed by Professor Neville Fletcher in 2010.