

APRIL 2020

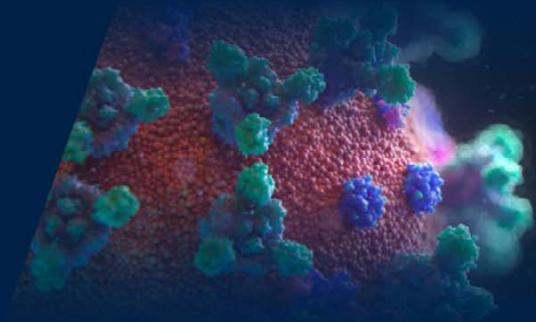
# NEWSLETTER

NUMBER 137



## Supporting the nation to combat COVID-19

VISIT THE COVID-19 NEWS AND RESOURCES HUB



## Message from the President—April 2020

April 30, 2020



Academy President  
Professor John Shine

As we move through different phases of the COVID-19 pandemic, the federal and state and territory governments are making decisions

that directly affect our lives in many ways. Each one involves a myriad of complex and important considerations to weigh up, with the future implications of today's decisions very much on the minds of politicians and the community.

It's not an easy task, and sadly too many lives are being lost across the globe. Comparatively, Australia is doing well. I am encouraged that the Prime Minister, his parliamentary colleagues and

policymakers, are informing their decisions with expert advice from a wide range of disciplines. Journalists have, in the main, also sought out the best minds to communicate the reality of the pandemic in a calm and measured way, and above all to keep people knowledgeable and informed of the facts.

This Academy, along with the other learned academies, is an integral part of Australia's response to the pandemic and I know we are making a material difference through our participation. I commend the experts, including many of our Fellows, who are supporting our activities to provide the scientific evidence needed to inform the government's decisions. And I thank the Academy's staff, outstandingly led by Anna-Maria Arabia, who are working hard to meet our increasing number of commitments to do our part to tackle COVID-19.

Thank you for keeping abreast of our involvement through our newsletter and other communications. Keep safe and well.

**John Shine**

# ACADEMY HONORIFIC AWARDS

NOMINATE BY 25 MAY



## Academy award nomination deadline extended to 25 May

April 23, 2020

The Australian Academy of Science acknowledges the current pressures on researchers around the country. From increased workloads for those directly related to the development of COVID-19 vaccines or treatments, to interesting online teaching challenges and drastically altered caring responsibilities, much of science sector will have been affected by the pandemic in some way.

While these additional challenges are ongoing, now, as much as ever, it is important for us to recognise and applaud those who have made a difference within their field of research, and to support science through our various research, travel and conference grants. However, we understand that the 1 May award nomination deadline could be too soon for some to find the required time to complete the nomination process.

As such, **the Academy honorific awards nomination deadline has been extended to 25 May 2020.**

The deadline for research grants, travelling fellowships and conference funding is one week later, on 1 June 2020.

We hope that the extension of the deadline will reduce the time-pressure barrier enough for those currently unsure they have capacity to complete a nomination prior to the previous deadline. **Due**

**to the award selection process, it is extremely unlikely that we will be able to extend this deadline further.**

We actively call on the entire science community to think about your network and encourage a colleague to nominate someone or even consider them for nomination.

Together, we will continue to support excellence in science and showcase Australia's scientific achievements.

The full list of available awards, grants, fellowships and funding can be found below, and further information on each award can be found at the **Academy's Awards page**<sup>1</sup>.

## Research sector answers the Government's call for the best available evidence on COVID-19

April 29, 2020



RRIF participants are working together to rapidly answer pressing questions about COVID-19, as they emerge.

Australia and New Zealand's science, research and innovation sectors have united to provide governments with the latest and best evidence

<sup>1</sup> [www.science.org.au/supporting-science/awards-and-opportunities](http://www.science.org.au/supporting-science/awards-and-opportunities)

as they contain and respond to the COVID-19 outbreak.

The **Rapid Research Information Forum (RRIF)**<sup>2</sup> was convened and is chaired by Australia's Chief Scientist, Dr Alan Finkel. It benefits from operational support and leadership from the Australian Academy of Science, and is a collaboration of the participant organisations, listed below.

RRIF participants are working together to rapidly answer pressing questions about COVID-19, as they emerge. Questions are put to the RRIF by Ministers and other key decision makers, for example to support the work of the Chief Medical Officer, the Australian Health Protection Principal Committee (AHPPC), and the National COVID-19 Coordination Commission (NCCC).

The first three reports, published in response to questions asked by the Health Minister, are available now.

- **What is the impact of winter on the spread of COVID-19?**<sup>3</sup>
- **Is reinfection with SARS-CoV-2 possible?**<sup>4</sup>
- **What is the feasibility of monitoring wastewater for early detection and monitoring of COVID-19 in the population?**<sup>5</sup>

The RRIF will answer a range of questions in upcoming reports at the request of Industry, Science and Technology Minister Karen Andrews; Health Minister Greg Hunt and Education Minister Dan Tehan and to support the NCCC. The growing list of questions includes:

Is there evidence for differential learning outcomes for online versus in-class education; what factors moderate the relative effectiveness; and are there distinct implications for students in metropolitan, remote, rural and indigenous communities?

What is the predictive value of serological antibody tests, and are point of care tests comparable to laboratory tests?

What impact is the pandemic having and likely to have on Australia's research workforce and

will we have the research workforce capability to support our recovery efforts?

What are the vaccines and treatments being developed globally that are regarded as having most promise (including national and international collaborations and consortia), and what are the mechanisms for action for each of these, their stage of development and their strengths and limitations?

Australian Academy of Science President Professor John Shine expressed his delight at the opportunity to submit the knowledge of scientists and other experts to the Australian Government at this critical time.

"We are in complex and uncharted territory, so it is absolutely appropriate that the independent and multidisciplinary expertise of Australia and New Zealand's science, research and innovation sectors is being brought to bear.

"The RRIF demonstrates the strength of evidence-informed decision making and the critical value of research and innovation in driving societal and economic progress," Professor Shine said.

Australia's Chief Scientist Dr Alan Finkel said the rapid reports follow a unique format, in which they synthesise the up-to-the-minute evidence base for a single issue informed by relevant experts and are peer reviewed.

"The COVID-19 pandemic is evolving quickly. The RRIF is enabling timely responses to be provided to policymakers based on the best available multidisciplinary evidence.

"The reports of the RRIF are a major collaborative effort across a number of sectors and complement the existing mechanisms of science advice to Government," Dr Finkel said.

Key finding on reports published to date include:

#### **What is the impact of winter on the spread of COVID-19?**<sup>6</sup>

- Notwithstanding the recent emergence of SARS-CoV-2, research suggests there will be some influence of winter on spread and severity of the virus.

2 [www.science.org.au/covid19/rapid-research-information-forum](http://www.science.org.au/covid19/rapid-research-information-forum)

3 [www.science.org.au/covid19/seasonality-covid-19](http://www.science.org.au/covid19/seasonality-covid-19)

4 [www.science.org.au/covid19/re-infection-sars-cov-2](http://www.science.org.au/covid19/re-infection-sars-cov-2)

5 [www.science.org.au/covid19/monitoring-waste-water](http://www.science.org.au/covid19/monitoring-waste-water)

6 [www.science.org.au/covid19/seasonality-covid-19](http://www.science.org.au/covid19/seasonality-covid-19)

- Lower humidity and air temperature can increase the viability and virulence of the virus and therefore its infectivity.
- Physical distancing supported by effective public policy measures will have a greater impact on managing the spread of SARS-CoV-2 than seasonal climate.
- The concurrence of COVID-19 with other viruses during winter, such as influenza, will likely exacerbate demands on health services, especially for vulnerable people and communities.
- The onset of winter may further exacerbate the psychological effects of COVID-19, especially if quarantining measures are extended.

### Is reinfection with SARS-CoV-2 possible?<sup>7</sup>

- Anecdotal reports of patients who have recovered from COVID-19 becoming reinfected may be due to testing problems. While we cannot say for certain that reinfection is not possible, the evidence for reinfection is so far not compelling.
- Overall, based on the changes detected in the blood cells and antibodies seen in most recovered patients, it could be reasonably extrapolated that individuals would be protected from reinfection with the same strain, at least in the short to medium term. However, no direct evidence for immunity in patients exists at present.

- Population-level studies would be needed to determine with greater certainty whether reinfection can occur in people who have developed antibodies to SARS-CoV-2.
- A decline in immunity or mutations in the virus could result in a future scenario in which reinfection is possible.

### What is the feasibility of monitoring wastewater for early detection and monitoring of COVID-19 in the population?<sup>8</sup>

- Wastewater-based epidemiology (WBE) techniques are used in routine surveillance for human pathogens and have provided valuable public health data. Developing similar WBE techniques for detection of SARS-CoV-2 is an active area of research and rapid improvements can be expected.
- Further understanding of SARS-CoV-2 infection biology and standardisation of WBE methods, along with improvements in their sensitivity and specificity, will enhance use of WBE tools to inform public health authorities of the prevalence of COVID-19 and management of its spread.
- Given the resolution of WBE techniques can facilitate the identification of communities in a given geographic location, there are concerns of stigmatisation of communities resulting from WBE. Careful thought must be given to research design and public release of data.



7 [www.science.org.au/covid19/re-infection-sars-cov-2](http://www.science.org.au/covid19/re-infection-sars-cov-2)

8 [www.science.org.au/covid19/monitoring-waste-water](http://www.science.org.au/covid19/monitoring-waste-water)

Forum member organisations

• Australia's Chief Scientist (Chair) • Australian Academy of Science • Australian Academy of Health and Medical Sciences • Australian Academy of Technology and Engineering • Academy of the Social Sciences in Australia • Australian Academy of the Humanities • Royal Society Te Apārangi (New Zealand) • Australian Council of Learned Academies • State and Territory Chief Scientists • Chief Science Advisor to the Government of New Zealand • Scientific expert members of the National Science and Technology Council • CSIRO • Universities Australia • Science & Technology Australia

For more information visit the [Rapid Research Information Forum website](#)<sup>9</sup>.

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## Academy supports nation in COVID-19 response

April 30, 2020



The news and resources hub makes it easy to find a range of expert contacts and material, and information for the community.

The Academy's response to COVID-19 remains strong and highly focused to where it will benefit most.

### New hub

The newly-created **news and resources hub**<sup>10</sup> makes it easy to find a range of expert material and contacts, and information for the community.

### Expert database

The Academy recently launched a **COVID-19 Expert Database**<sup>11</sup>, which provides governments, the business sector, the research sector and other decision-makers easy access to the expertise they need across many fields. There are now more than 1500 experts listed on the database.

### Rapid Research Information Forum

The Academy is also supporting the **Rapid Research Information Forum**<sup>12</sup>, formed under the leadership of Australia's Chief Scientist, Dr Alan Finkel AO FAA FTSE FAHMS. The Academy has led the development of two rapid research reports for the Minister for Health on **the impact of winter on the spread of COVID-19**<sup>13</sup> and the **feasibility of monitoring wastewater for the early detection and monitoring of COVID-19 in the population**<sup>14</sup>. A third report, on **reinfection with the COVID-19 virus**<sup>15</sup>, was led by the Australian Academy for Health and Medical Sciences with support from the Academy. Further reports are in the pipeline.

### COVID-19: The facts

The Academy has produced **27 videos and four articles**<sup>16</sup> full of up-to-date information that have been widely viewed and shared on social media and by news organisations. Videos vary in length and include a series of in-depth interviews with experts, called 'The latest from science'. The aim is to reach a wide audience, helping people to understand the changing situation and make decisions based on facts.

### Science for Australians

The first COVID-19 related feature in the Academy's Science for Australians initiative is **Open Science: after the COVID-19 pandemic there can be no return to closed working**<sup>17</sup>, by Professor Virginia Barbour and Mr Martin Borchert. The article explores how research relevant to

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9 [www.science.org.au/covid19/rapid-research-information-forum](http://www.science.org.au/covid19/rapid-research-information-forum)

10 [www.science.org.au/covid19/news-and-resources](http://www.science.org.au/covid19/news-and-resources)

11 [www.science.org.au/covid19/experts](http://www.science.org.au/covid19/experts)

12 [www.science.org.au/covid19/rapid-research-information-forum](http://www.science.org.au/covid19/rapid-research-information-forum)

13 [www.science.org.au/covid19/seasonality-covid-19](http://www.science.org.au/covid19/seasonality-covid-19)

14 [www.science.org.au/covid19/monitoring-waste-water](http://www.science.org.au/covid19/monitoring-waste-water)

15 [www.science.org.au/covid19/re-infection-sars-cov-2](http://www.science.org.au/covid19/re-infection-sars-cov-2)

16 [www.science.org.au/curious/people-medicine/covid-19-facts](http://www.science.org.au/curious/people-medicine/covid-19-facts)

17 [www.science.org.au/curious/policy-features/open-science-after-covid-19-pandemic-there-can-be-no-return-closed-working](http://www.science.org.au/curious/policy-features/open-science-after-covid-19-pandemic-there-can-be-no-return-closed-working)

the COVID-19 pandemic has led to open access, which has enabled a unified and rapid global scientific response.

## School education programs

The Academy's school education programs in science and mathematics<sup>18</sup> continue to support a strong foundation in STEM teaching and learning in Australia. Find out more about how we are extending our support of education in Australia<sup>19</sup>.

## EMCR online opportunities

The Academy's Early- and Mid-Career Researcher (EMCR) Forum is currently hosting webinars and virtual catch-ups for EMCRs<sup>20</sup>. These online opportunities aim to provide a sense of community and connectedness to EMCRs, as well as tools to deal with the uncertainty created by COVID-19. Find out about the first event<sup>21</sup>.

## Connecting EMCRs during COVID-19

April 30, 2020



The Academy's Early- and Mid-Career Researcher (EMCR) Forum is currently hosting webinars and virtual catch-ups for EMCRs<sup>22</sup>. These online opportunities aim to provide a sense of community and connectedness to EMCRs, as well as to provide tools to deal with the uncertainty created by COVID-19.

The first virtual event in mid-April was an opportunity for EMCRs to have an open discussion about the challenges and lessons learned during the transition to working from home. It was also an opportunity to share ideas,

tips and must-haves to support researchers in dealing with the new 'normal':

- If you miss bouncing ideas with your colleagues at the office or lab, try organising a virtual office once or twice a week. Keep a live feed with people you usually work with in an effort to replicate an office environment.
- Get out of your pyjamas every morning to help you start your day.
- If possible, maintain a daily routine. Find something that works for you, and that helps you define the lines between 'home life' and 'work life'. We understand that this might be challenging if you are a carer.
- Clear communication from supervisors about the steps you should be taking to transition to work from home, as well as access to practical advice, makes a huge difference.
- Employers must recognise that this is not business as usual and that productivity levels will change. Support and information from your organisation are key to help dealing with guilt from productivity loss.
- **Be kind to yourself and those around you.** The current circumstances are unprecedented, and we are all coping with change in different ways.

## EMCR representatives on National Committees for Science

The Academy has 22 National Committees for Science<sup>23</sup> that are broadly representative of Australian science and advise the Academy on matters relating to domestic and international discipline development. The National Committees have impressive diversity and coverage among their memberships and have recently established new positions for EMCR representatives through the Academy's EMCR Forum. The EMCR Forum Representatives on National Committees is a pathway for EMCRs to be involved with the

<sup>18</sup> [www.science.org.au/education/academy-school-education-programs](http://www.science.org.au/education/academy-school-education-programs)

<sup>19</sup> [www.science.org.au/academy-newsletter/apr-2020-137/academy-extends-support-school-education](http://www.science.org.au/academy-newsletter/apr-2020-137/academy-extends-support-school-education)

<sup>20</sup> [aas.eventsair.com/emcr-forum-webinars/registration/Site/Register](http://aas.eventsair.com/emcr-forum-webinars/registration/Site/Register)

<sup>21</sup> [www.science.org.au/academy-newsletter/apr-2020-137/connecting-emcrs-during-covid-19](http://www.science.org.au/academy-newsletter/apr-2020-137/connecting-emcrs-during-covid-19)

<sup>22</sup> [aas.eventsair.com/emcr-forum-webinars/registration/Site/Register](http://aas.eventsair.com/emcr-forum-webinars/registration/Site/Register)

<sup>23</sup> [www.science.org.au/supporting-science/national-committees-science](http://www.science.org.au/supporting-science/national-committees-science)

Academy more broadly, to improve links and representation of the EMCR community.

The EMCR Forum is run by and for early- and mid-career researchers in science, technology, engineering and mathematics in Australia who are up to 15-years post-PhD, excluding career interruption. The EMCR Forum offers **information, resources, opportunities and contacts**<sup>24</sup> to help EMCRs develop a career in and around STEM. Whether you are a recent PhD graduate in university research, based within the private sector, or making your contribution in government, the EMCR Forum is here for you.

The EMCR Forum Representatives on National Committees are a formal link to the EMCR Forum Executive regarding input from an all-of-science EMCR perspective. Find out about the **current EMCR Forum Representatives on National Committees**<sup>25</sup>.

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## Academy extends support for school education

April 30, 2020

The impact of COVID-19 on Australian schools and schooling is significant. The Academy is offering support, advice and resources to systems, schools and teachers as they provide alternative methods of delivering education to students at home.

Our Australian Curriculum linked Foundation to Year 10 science and mathematics education programs are available online and remain free of charge.

As the education programs are generally developed for school-based settings, we are working to customise resources for the current circumstances. To ensure these resources are useful, practical and connected to what's happening in schools across the country, this customisation is done in consultation with teachers, state and territory education departments, as well as national agencies such

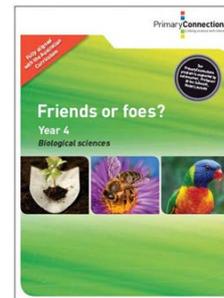
as Education Services Australia and the Australian Curriculum, Assessment and Reporting Authority.

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'Friends or foes' is one of the Primary Connections resources on the Scootle playlists

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Support for teachers remains a central focus of the Academy's programs. Customisation and adaptation is being undertaken sensitively and sensibly to suit COVID-19 environments which, during physical distancing, can be limited to a place of residence of students and their contact with a small number of people.



## Primary Connections

Primary Connections is developing learning and teaching resources suitable for use under the current circumstances. In developing resources, we aim to:

- give teachers flexibility and agency with resources to most appropriately deliver at-home learning for different contexts and student needs
- equip teachers to support parents and carers to implement learning at home
- link science with literacy, be guided by education research, incorporate collaborative learning principles, and include opportunities for investigating and embedded assessment
- encourage curiosity, build an awareness of science in our everyday world, and develop scientific literacy.

Resources currently include Scootle playlists and Science for families: mini explorations.

New resources will be added each week.

**Subscribe to our mailing list**<sup>26</sup> to stay informed about the newest resources available.

**More about Primary Connections**<sup>27</sup>

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<sup>24</sup> [www.science.org.au/supporting-science/early-and-mid-career-researchers-0](http://www.science.org.au/supporting-science/early-and-mid-career-researchers-0)

<sup>25</sup> [www.science.org.au/supporting-science/early-and-mid-career-researchers/national-committees-science-emcr-representatives](http://www.science.org.au/supporting-science/early-and-mid-career-researchers/national-committees-science-emcr-representatives)

<sup>26</sup> [primaryconnections.org.au/about](http://primaryconnections.org.au/about)

<sup>27</sup> [www.science.org.au/education/academy-education/primary-connections](http://www.science.org.au/education/academy-education/primary-connections)

## reSolve: Mathematics by Inquiry

reSolve is working with the New South Wales Department of Education to support online mathematics learning, both via teachers and direct to students. We will be providing additional resources to supplement our existing sequences, including printable student workbooks, instructional and demonstrative videos, and advice for adapting to home learning.

reSolve is also developing student investigations for self-directed student learning.

**More about reSolve**<sup>28</sup>

## Science by Doing

Science by Doing as a resource is ready to go for distance education! We are drawing on examples from those who already use the program in distance education and home-schooling environments to develop advice and inspiration for other users.

**More about Science by Doing**<sup>29</sup>

## Advice for parents and carers



Feeling anxious about home schooling?  
Watch on Vimeo: [vimeo.com/409698920](https://vimeo.com/409698920)

## Australia's leading scientists respond to the release of Government's modelling data

**April 07, 2020**

The Australian Academy of Science is encouraged by indications that National Cabinet will make public future models based on Australian data on a regular basis.

To allow the valuable knowledge of the scientific community to be brought to bear in what is complex and uncharted territory, transparency regarding the scientific inputs to National Cabinet decisions, and the deliberations of the Australian Health Principal Protection Committee is vital.

The release of the scientific evidence base will show the role of science in informing key decisions and in turn build trust, confidence and compliance amongst the community.

The **Doherty Institute papers**<sup>30</sup> that have been released today are being reviewed by discipline experts within the Academy's Fellowship. The scientific process which we have relied on for hundreds of years has shown us that peer review and interrogation of data, leads to the best possible evidence base to inform decision making.

In analysing the evidence as it is gradually made public, we encourage the media and the community to engage with experts, rather than be led by opinion. In addition to the Academy of Science Fellowship, a national COVID-19 Expert Database was developed as a collaborative effort amongst Australia's leading academies and is available and searchable at [science.org.au/covid19/experts](https://www.science.org.au/covid19/experts). More than 550 experts have registered for the database since its launch last Friday.

In addition to developing and hosting Australia's COVID-19 Expert Database, the Australian Academy of Science is supporting the national response to COVID-19 through the production of **informative and fact checked video content**<sup>31</sup>.

<sup>28</sup> [www.science.org.au/education/academy-school-education-programs/resolve-mathematics-inquiry](https://www.science.org.au/education/academy-school-education-programs/resolve-mathematics-inquiry)

<sup>29</sup> [www.sciencebydoing.edu.au/](https://www.sciencebydoing.edu.au/)

<sup>30</sup> [www.doherty.edu.au/news-events/news/covid-19-modelling-papers](https://www.doherty.edu.au/news-events/news/covid-19-modelling-papers)

<sup>31</sup> [www.science.org.au/curious/people-medicine/covid-19-facts](https://www.science.org.au/curious/people-medicine/covid-19-facts)

# Academy President and Fellows elected to Royal Society

April 30, 2020

Three Academy Fellows, including Academy President John Shine, have been newly elected to the Royal Society, the world's oldest scientific academy in continuous existence.

They are among 62 individuals worldwide who have been recognised for their outstanding contributions to scientific understanding.

Past Fellows and Foreign Members of the Royal Society have included Isaac Newton, Charles Darwin, Albert Einstein, Dorothy Hodgkin and Stephen Hawking.

Dr Venki Ramakrishnan, President of the Royal Society, said at this time of global crisis, the importance of scientific thinking, and the medicines, technologies and insights it delivers, has never been clearer.

“Our Fellows and Foreign Members are central to the mission of the Royal Society, to use science for the benefit of humanity,” said Dr Ramakrishnan.

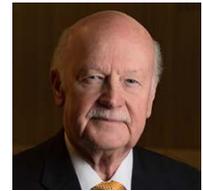
The Fellowship of the Royal Society are the most eminent scientists, engineers and technologists from or living and working in the UK and the Commonwealth. Each year up to 52 Fellows and up to 10 Foreign Members are elected from a group of about 700 candidates.



View this article online<sup>32</sup> to watch 'Biotech lights the way'

## Professor John Shine

Professor John Shine AC PresAA FRS



***What does it mean to be elected a Fellow of the Royal Society?***

“It’s obviously an honour to join such an illustrious group of scientists. Recognition by your peers is always special. Science is critical to finding real and lasting solutions to all challenges to humanity—whether it be acute, like infectious disease pandemics, or more longer term like climate change and environmental pollution.”

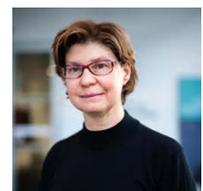
***Are there any Fellows of the Royal Society who have been a particular source of inspiration for you?***

“All of them and what they stand for—the pursuit of knowledge for the betterment of humanity, as with the Australian Academy—but in particular Australians such as Suzanne Cory, Jerry Adams, Gus Nossal and Jim Peacock who are world leaders in fields close to my direct interests.”

Professor Shine is a leading figure in the molecular biology of gene structure and expression and its application to medicine. He has made major contributions to the development of recombinant DNA technology, both in Australia and internationally. He was the first to clone a human hormone gene and was a central figure in cloning the first mammalian genes, insulin and growth hormone. He was the first to demonstrate that human genes cloned in bacteria could be expressed in a biologically active form and, more recently, has made major contributions to evolving concepts of the structure and function of receptor families.

## Professor Jane Visvader

Professor Jane Visvader FAA FRS FAHMS



***What does it mean to be elected a Fellow of the Royal Society?***

“Discoveries made by Fellows of the Royal Society have played such a transformative role in society. It is truly humbling to be joining such

32 [www.science.org.au/news-and-events/news-and-media-releases/academy-president-and-fellows-elected-royal-society](http://www.science.org.au/news-and-events/news-and-media-releases/academy-president-and-fellows-elected-royal-society)

an esteemed list of scientists, dating back to the 1600's. It is wonderful to be recognised by scientific peers for contributions in my own research area, which is aimed at delivering better outcomes for women with breast cancer. I hope that my election will provide some inspiration to early-career scientists, especially women. Election does come with a responsibility to help promote science and convey the importance of science to shaping a better society."

***Why does science matter, particularly at a time when we are dealing with the COVID-19 crisis?***

"More than ever, this pandemic underscores how dependent our society is on basic and applied science. The biological sciences have always been pivotal to understanding the basis for disease and pinpointing effective therapies. The COVID-19 crisis reminds us how important the scientific method is for understanding the basis of diseases, climate change and the long list of issues that have global relevance."

***Are there any Fellows of the Royal Society who have been a particular source of inspiration for you?***

"I'm a strong believer that scientific rewards come from hard work, perseverance and a passion for discovery. Mentors also play an important role. I have been fortunate to have had many wonderful mentors over the years, most recently Jerry Adams and Suzanne Cory, both Fellows of the Royal Society, who have helped shape my career. In turn, one of the things I'm most proud of is that I have had the opportunity to supervise many talented scientists who have gone on to become successful independent researchers. The majority of these have been women."

Professor Visvader is a leading Australian molecular and cellular biologist who has greatly clarified breast development and the role of stem cell biology in breast cancer. In a remarkable discovery, her team identified and isolated the stem cell that generates the entire breast. Her work also defined the cellular hierarchy within the breast, identified master regulators that orchestrate its differentiation program, and discovered that certain types of breast cancer originate from specific progenitor cells. The results of her research have profound implications for understanding the cellular origins of both normal and cancerous epithelial tissues.

## Professor John Endler

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Professor John Endler FAA FRS

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***What does it mean to be elected a Fellow of the Royal Society?***

"To me it is a very high honour indeed! I never expected to be elected, my only life goal has always been to be a happy zoologist! Just amazing! This is also very good news for my scientific fields: the interface among behavioural ecology, evolutionary ecology, sensory ecology, ecology and evolution."

***What inspired you to pursue this path?***

"Pure curiosity! Also curiosity about the why, rather than just the usual who (taxonomy), what, where, and how. [Science] is the only way to obtain objective reality; science is explicitly designed to remove bias and get at the facts and actual reality. Everything else is pure self-serving opinion. And a lot of opinion is harmful and at best unproductive."

***Are there any Fellows of the Royal Society who have been a particular source of inspiration for you?***

"Yes, Nick Davies. He is unique in making major use of first-class natural history to generate testable hypotheses and test them. In the current rush to get grants and publish, most other people have forgotten that the ultimate source of new hypotheses and new insights comes from natural history. Without that fields get bogged down and answering—or not answering—the same old questions in the same old, often unproductive, ways. Novelty and good hypotheses depend upon natural history which means keen and careful observation of natural phenomena. This applies to any field, not just mine."

Professor Endler is widely held as one of the world's leading evolutionary biologists. He was instrumental in showing how geographically varying elements can cause divergent evolution and speciation, despite significant gene flow. His experimental evolution studies of sexual selection and natural selection on colour patterns of guppies were groundbreaking, and his demonstration of the modes and strength of selection in the wild has spawned a generation

of research into selection in natural populations. His work on colour vision has revolutionised our understanding of how animals perceive the world, and he has pioneered the new science of sensory ecology.

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## Academy Fellows elected to National Academy of Sciences

April 29, 2020



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Professor Jane Elith and Professor Roger Summons

Academy Fellows Professor Jane Elith and Professor Roger Summons have been elected to the National Academy of Sciences (NAS) in the United States.

Founded in 1863 as a result of an Act of Congress approved by President Abraham Lincoln, the NAS is a society of distinguished scholars that provides independent, objective advice on matters related to science and technology.

Scientists are elected by their peers to membership in the NAS for outstanding contributions to research. NAS membership currently totals approximately 2400 American members and 500 international members. Approximately 190 members and international members have received Nobel prizes.

The Academy congratulates Professor Elith and Professor Summons on their election as international NAS members, considered one of the highest honours a scientist can receive.

### Professor Jane Elith

Professor Jane Elith, Professor in Biodiversity Modelling at the University of Melbourne, has

rapidly become one of the world's most influential researchers in applied ecology. She specialises in species distribution models that help to better inform environmental managers and governments on invasive species, land-use and improving biodiversity.

Professor Elith received her PhD in ecology from the University of Melbourne in 2002 and has since been a Research Fellow in the School of Botany. She is currently an Australian Research Council Future Fellow within the Centre of Excellence for Biosecurity Risk Analysis at the university.

Professor Elith is one of the most highly cited ecologists in Australia and was recognised by Thomas Reuters as a highly cited researcher from 2014–2016, putting her in the top 1% of researchers globally. She has received several awards, including the 2015 Prime Minister's prize for Life Scientist of the Year and the 2016 Fenner Medal from the Australian Academy of Science, and was elected as a Fellow of the Australian Academy of Science in 2017. Professor Elith has been a subject editor for numerous scientific journals in the fields of ecology, plant and animal species distribution and ecography and teaches specialist courses in spatial modelling.

### Professor Roger Summons

Professor Summons is the Schlumberger Professor of Geobiology at the Massachusetts Institute of Technology (MIT). He is particularly well known for his work on the application of organic geochemical methods to study microbes to increase the understanding of the early evolution of life on Earth. Professor Summons received his PhD in organic chemistry from the University of New South Wales in 1972 after which he conducted postdoctoral and research fellowships at Stanford University and the Australian National University. Professor Summons held appointments at the Australian National University and Geoscience Australia before joining MIT in 2001. He is Principal Investigator of the MIT NASA Astrobiology Institute, where he leads a team that studies the Foundations of Complex Life, and is also a member of the Sample Analysis on Mars instrument team.

Professor Summons served on three committees of the US National Research Council from 2003 to 2007, including the Committee on Origin and

Evolution of Life, the Committee on Limits of Life, and the Committee on Mars Astrobiology. He also served as NASA co-chair of the organic contamination panel for the Mars 2020 Rover. He has been a member of the editorial boards of the scientific journals *Astrobiology*, *Geobiology* and *Palaeoworld* since their establishment. He has received numerous awards, including the Australian Organic Geochemistry Medal (2002), the Alfred E. Treibs Award of the Geochemical Society (2003) and the Alexander von Humboldt Foundation Research Award (2008), and has been elected as a Fellow of the Australian Academy of Science (1998), the American Geophysical Union (2006), the Royal Society (2008) and the American Academy of Microbiology (2012).

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## Plan ahead for your event at the Shine Dome

April 30, 2020



The Academy is now taking bookings for the Shine Dome venue for late 2020 and all of 2021.

The Academy's iconic Shine Dome is the perfect venue for Canberra meetings and events.

The Shine Dome last year celebrated its 60th anniversary. The iconic structure reflects some of the more adventurous architectural ideas of the mid-20th century and remains one of the most unusual buildings in Australia.

The dome—roof, walls and structure combined—dives down beneath the still water of its moat to give the sense that it is floating. From the walkway between the moat and the inner walls, the arches provide a 360° panoramic sequence of 16 views of Canberra city and the hills beyond.

With rooms flooded with natural light surrounding a central theatre, the Shine Dome has the perfect

spaces for hosting corporate events, conferences, meetings, lectures, private celebrations and more.

The Academy is now taking bookings for late 2020 and all of 2021. Take this opportunity to speak with our team and let them guide you to make your next meeting a success.

The menu features a range of local Canberra produce and the professional audio-visual team will help make your next event shine.

Should physical distance restrictions still be in place closer to your booking date, the venue team will help you postpone your event and transfer all monies paid to your new event date.

For all enquiries visit the **Shine Dome website**<sup>33</sup> or contact the team on [shinedome@science.org.au](mailto:shinedome@science.org.au).

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## Science policy update—April 2020

April 30, 2020

### Submissions

In March the Academy made a submission to the Senate Standing Committee on Economics into the **National Radioactive Waste Management Amendment**<sup>34</sup> (Site Specification, Community Fund and Other Measures) Bill 2020 [Provisions].

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Longitudinal population data are contributing to our understanding of disease patterns and healthcare.

Photo: Annie Spratt / Unsplash



In April the Academy made a joint submission with the Australian Academy of Health and Medical Science (AAHMS) to the Australian Institute of Health and Welfare's draft **National Health Information Strategy Framework**<sup>35</sup>. The submission makes the point that Australia has an opportunity to drive genuine improvements in health through the appropriate use of data and gives examples where longitudinal population data are contributing to our understanding of disease patterns and healthcare. The submission was prepared with advice from the Academy's

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<sup>33</sup> [www.shinedome.org.au](http://www.shinedome.org.au)

<sup>34</sup> [www.science.org.au/supporting-science/science-policy-and-analysis/submissions-government/submission-national](http://www.science.org.au/supporting-science/science-policy-and-analysis/submissions-government/submission-national)

<sup>35</sup> [www.science.org.au/supporting-science/science-policy-and-analysis/submissions-government/submission-response-national](http://www.science.org.au/supporting-science/science-policy-and-analysis/submissions-government/submission-response-national)

National Committee for Data in Science and National Committee for Nutrition, and AAHMS Fellows Professor John Carlin, Professor Ken Ho and Professor John Zalcberg.

The Academy also made a submission to the Senate Standing Committee on Foreign Affairs, Defence and Trade regarding **opportunities for strengthening Australia's relations with the Republic of France**<sup>36</sup>. The submission was prepared by the Academy's National Committees team and the policy team with input from the Embassy of France in Canberra.

In April the Academy made a submission to the Environment Protection and Biodiversity Conservation (EPBC) Act Review led by independent reviewer Professor Graeme Samuel AC. The Academy offered the review six short papers that address key aspects of the operations of the EPBC Act. The submission was drafted with advice from Academy Fellows Professor Helene Marsh, Professor Craig Moritz, Professor David Lindenmayer and Professor Christopher Dickman, along with Associate Professor Emily Nicholson, Professor Martine Maron, Dr Jessica Walsh, Dr Libby Rumpff, Professor Don Driscoll, Professor John Zichy-Woinarski and Professor Steven Chown, and with input from the National Committee for Ecology, Evolution and Conservation.

## Taxonomy Australia meets online for grand science mission

A national meeting to plan for a grand science mission to discover and document all remaining Australian species was scheduled to be held in Adelaide in March, organised by Taxonomy Australia and hosted and supported by the Biodiversity Institute at the University of Adelaide, with further support from the Ian Potter Foundation. Unfortunately, it was necessary to cancel that meeting at the last minute due to the coronavirus situation. The planned three-day face-to-face meeting was replaced by an online meeting comprising a series of YouTube presentations, question-and-answer sessions, Zoom breakouts, panel discussions and webinars, running over three weeks. This was highly

successful—a face-to-face meeting of 40 select participants was replaced by an online one that attracted nearly 200 people from throughout Australia and around the world. Participants at the meeting have been very enthusiastic, and the online platform more than met the meeting's aims. **Subscribe to receive updates from Taxonomy Australia**<sup>37</sup> or **follow on Twitter**<sup>38</sup>.

In parallel, Deloitte Access Economics is generously supporting a project to develop a preliminary cost-benefit analysis for the mission, to estimate the benefits to Australia of discovering and documenting all our biodiversity, and the cost of such a grand piece of science infrastructure.

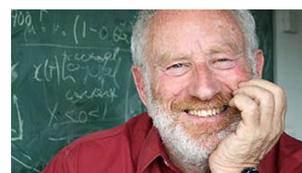


Watch 'Sir David Attenborough backs new biodiversity plan' on YouTube: [youtu.be/\\_L\\_oh6yKvTo](https://youtu.be/_L_oh6yKvTo)

## Geophysicist tours Australia as 2019 Selby Fellow

April 30, 2020

Geophysicist Professor Herbert Huppert, who received the Academy's 2019 Selby Fellowship, presented lectures in seven cities across Australia between April and November last year. Australian-born Professor Huppert is Emeritus Professor of Theoretical Geophysics at Cambridge University, a Fellow of the Royal Society and the Foundation Director of the Institute of Theoretical Geophysics.



Professor Herbert Huppert, who was the Academy's 2019 Selby Fellow, presented lectures in seven cities across the country.

<sup>36</sup> [www.science.org.au/supporting-science/science-policy-and-analysis/submissions-government/submission-opportunities](http://www.science.org.au/supporting-science/science-policy-and-analysis/submissions-government/submission-opportunities)

<sup>37</sup> [www.taxonomyaustralia.org.au/subscribe](http://www.taxonomyaustralia.org.au/subscribe)

<sup>38</sup> [twitter.com/australtaxonomy](https://twitter.com/australtaxonomy)

Professor Huppert presented lectures in Perth, Adelaide, Sydney, Melbourne, Brisbane, Darwin and Alice Springs, the latter two cities hosting a Selby Fellow lecture for the first time. Engagement with audiences across the country proved fruitful, with Professor Huppert forging several new collaborations.

Professor Huppert has published extensively across a wide range of disciplines including geology, geophysics, mathematics, crystal growth, fluid mechanics, oceanography and meteorology. In particular, his research focuses on carbon dioxide sequestration and applying fluid mechanics principles to the Earth sciences.

Selby Fellowships are awarded to distinguished overseas scientists to visit scientific centres in Australia. Fellows are outstanding lecturers and are expected to increase public awareness of science. The Fellowship is financed through the generosity of the trustees of the Selby Scientific Foundation.

**Find out more about the Selby Fellowship<sup>39</sup>.** Nominations for this year's fellowship close 1 June 2020.

## Opportunities for scientists—April 2020

April 30, 2020

### Academy awards and funding opportunities

#### Honorific awards, research conferences, research awards and travelling fellowships

Nominations are open for the Academy's 2021 honorific awards, and applications open for research conferences, research awards and travelling fellowships.

The Academy is committed to **celebrating and supporting diversity<sup>40</sup>**. 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.

Two new career awards are the **Ruby Payne-Scott Medal and Lecture<sup>41</sup>** and the **Suzanne Cory Medal<sup>42</sup>**.

The closing date for honorific award nominations has been extended to 25 May 2020. The closing date to apply for research conferences, research awards and travelling fellowships is 1 June 2020.

#### More information on Academy awards and funding opportunities<sup>43</sup>

### Deadline extended for APEC 2020 ASPIRE Prize applications

The application deadline for the **APEC Science Prize for Innovation, Research and Education<sup>44</sup>** (ASPIRE Prize) for 2020 has been extended to 11:59 pm (AEST) Friday 15 May 2020. The ASPIRE Prize is an annual award which recognises young scientists under 40 years of age from APEC economies who have demonstrated a commitment to both excellence in scientific research, as evidenced by scholarly publication, and cooperation with scientists from other APEC member economies. The theme chosen for this year is Biodiversity for a Prosperous Economy. Biodiversity is foundational for human health as it underpins the functioning of our ecosystems and its study crosses many scientific disciplines. This theme focuses on scientists' contributions to biodiversity for prosperous economies across the APEC region by driving research that contributes to local livelihoods, traditional and modern medicines, and economic development.

### External awards

#### Georgina Sweet Awards for Women in Quantitative Biomedical Science

Four awards of \$25,000 each will be made to Australian female researchers who demonstrate excellence in the area of quantitative biomedical science. Diversity is an essential part of the award

39 [www.science.org.au/supporting-science/awards-and-opportunities/selby-fellowship-0](http://www.science.org.au/supporting-science/awards-and-opportunities/selby-fellowship-0)

40 [www.science.org.au/about-us/diversity-and-inclusion](http://www.science.org.au/about-us/diversity-and-inclusion)

41 [www.science.org.au/supporting-science/awards-and-opportunities/ruby-payne-scott-medal-and-lecture-women-science](http://www.science.org.au/supporting-science/awards-and-opportunities/ruby-payne-scott-medal-and-lecture-women-science)

42 [www.science.org.au/supporting-science/awards-and-opportunities/suzanne-cory-medal](http://www.science.org.au/supporting-science/awards-and-opportunities/suzanne-cory-medal)

43 [www.science.org.au/supporting-science/awards-and-opportunities](http://www.science.org.au/supporting-science/awards-and-opportunities)

44 [www.science.org.au/supporting-science/awards-and-opportunities/apec-science-prize-innovation-research-and-education-aspire-prize](http://www.science.org.au/supporting-science/awards-and-opportunities/apec-science-prize-innovation-research-and-education-aspire-prize)

mission, so applications are welcome from women of culturally diverse backgrounds.

An additional two awards of \$25,000 each will be made for Excellence in Inclusivity, recognising women in biomedical science who have a strong track record in research and who have demonstrated the importance of inclusion and diversity.

Applications for the above awards are open 1–31 May 2020.

Up to three awards of \$3000 are available each year to support attendance of a female keynote speaker at an Australian quantitative biomedical science conference. Applications are open at any time until conference awards have been allocated for the year.

**More information on the Georgina Sweet Awards for Women in Quantitative Biomedical Science**<sup>45</sup>

### John Maddox Prize 2020

Awarded to researchers who have shown great courage and integrity in standing up for science and scientific reasoning against fierce opposition and hostility. Each year there is one winner, and an additional prize for an early career researcher—£3000.

**More information about the John Maddox Prize 2020**<sup>46</sup>

Applications close 11 May 2020

### Premi Ramon Margalef d'Ecologia

Awarded to either individuals or to legal persons or groups that have made significant contributions to the development of the ecological sciences.

**More information on the Premi Ramon Margalef d'Ecologia**<sup>47</sup>

Applications close 15 May 2020

### Resilient Australia Award

Recognises and promotes initiatives that strengthen community disaster resilience.

**More information on the Resilient Australia Award**<sup>48</sup>

Applications close 18 May 2020

### Science Excellence Awards South Australia

Awarded to high achievers in research, industry and education in South Australia. The South Australian Scientist of the Year and the South Australian Innovator of the year will receive \$25,000 prize money and winners of all other categories will receive \$10,000

**More information on the Science Excellence Awards South Australia**<sup>49</sup>

Applications close 22 May 2020

### Bower Award and Prize for Achievement in Science

The theme for 2021 is 'Decision-making'. Awarded to individuals who have made significant contributions to the scientific understanding of decision-making—US\$250,000.

**More information on the Bower Award and Prize for achievement in Science**<sup>50</sup>

Applications close 31 May 2020

### Prince Mahidol Award

Awarded to individual(s) or institutions(s) for their outstanding performance and/or research in medicine that contributes directly to the betterment of society. There will be one award in medicine and one in public health—US\$100,000

**More information on the Prince Mahidol Award**<sup>51</sup>

Applications close 31 May 2020

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**See more external awards and prizes**<sup>52</sup>

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45 [mdhs.unimelb.edu.au/equity-and-diversity/georgina-sweet-laureate-fellowship#awards](https://mdhs.unimelb.edu.au/equity-and-diversity/georgina-sweet-laureate-fellowship#awards)

46 [senseaboutscience.org/john-maddox-prize/](https://senseaboutscience.org/john-maddox-prize/)

47 [presidencia.gencat.cat/en/ambits\\_d\\_actuacio/premis/premi-ramon-margalef-decologia/](https://presidencia.gencat.cat/en/ambits_d_actuacio/premis/premi-ramon-margalef-decologia/)

48 [www.aidr.org.au/programs/resilient-australia-awards/](https://www.aidr.org.au/programs/resilient-australia-awards/)

49 [www.scienceawards.sa.gov.au/](https://www.scienceawards.sa.gov.au/)

50 [www.fi.edu/awards/bower-award-prize-achievement-science](https://www.fi.edu/awards/bower-award-prize-achievement-science)

51 [www.princemahidolaward.org/nomination-procedures/](https://www.princemahidolaward.org/nomination-procedures/)

52 [www.science.org.au/supporting-science/recognition/external-sources-recognition](https://www.science.org.au/supporting-science/recognition/external-sources-recognition)