

Message from the Chief Executive

August 30, 2019

August saw the Academy launch its 'Reflect' Reconciliation Action Plan. With the valued input of Fellows and external Indigenous advisors, it is a practical and achievable action plan for the next 12 months. I encourage all Fellows and others involved with the Academy's activities to become familiar with the plan and consider how, as individuals and as an organisation, we can collectively bring about change that steps us closer to reconciliation in Australia.

I am delighted that two very significant steps have been taken toward the implementation of the national **10-year plan to advance women in STEM**¹ launched just five months ago. Early in August the Academy published the STEM Women searchable database that connects women with career-advancing opportunities, and makes it much easier to find women experts in a wide range of disciplines. The database now lists nearly 2000 women, some of whom have already accessed new opportunities. Its development would not have been possible without the support of the

Department of Industry, Innovation and Science, and Science & Technology Australia, CSIRO and the Australian Science Media Centre.

The second achievement was the recent call by the Minister for Science and Technology Karen Andrews for organisations to become Women in STEM Champions, and publish their gender equity progress on the STEM Women website. This enables STEM sector leaders and emerging champions to share knowledge, act, evaluate and create accountability, all of which were identified as crucial to improvements in many industries and sectors across Australia.

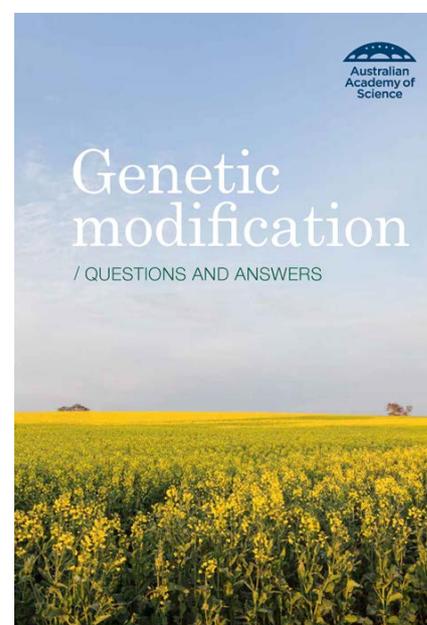
I encourage you to read the Academy's recently released Q&A on genetic modification (GM) to help more people understand the science of GM. This publication, like the immunisation and climate change Q&As before it, will become a benchmark source for people looking for credible, authoritative and accessible information, not only in Australia but across the world.

Of course, as well as all these achievements, August is always a full month as National Science Week focuses our attention on the value of making science accessible

and fun for everyone. This year the Academy was involved in a wide range of activities and I encourage you to read the week's overview in this month's newsletter. Thank you to the many Fellows and other scientists, educators, government and industry representatives and community members who supported us, and to all who participated in the events. We're already thinking of ideas for next year!

I hope you enjoy reading the August newsletter.

Anna-Maria Arabia



GM technologies used to date pose no greater risk to human health or the environment than similar products derived from traditional breeding and selection processes.

1 www.science.org.au/support/analysis/decadal-plans-science/women-in-stem-decadal-plan

Leading scientists say fears about GM products are unjustified

August 21, 2019

GM technologies used to date pose no greater risk to human health or the environment than similar products derived from traditional breeding and selection processes.

It was a stunning admission by one of the leaders in the global fight against genetically modified food.

“As an environmentalist, and someone who believes that everyone in this world has a right to a healthy and nutritious diet of their choosing, I could not have chosen a more counterproductive path and now I regret it completely.”

The dramatic about-face by leading British author, journalist and environmental activist, Mark Lynas, who is now a Visiting Fellow at Cornell University, was brought about by understanding the science.

To help more people understand the evidence, the Australian Academy of Science is today releasing a Q&A on genetic modification (GM) that tackles some of the big questions.

The release of the booklet comes as **South Australia plans to lift its ban on growing GM crops on the mainland²**, and **Tasmania extends its moratorium for another 10 years³**. Meanwhile, the Australian Greens **have moved to disallow**

proposed amendments⁴ to the Gene Technology Regulations 2019.

The Academy has written to the crossbench, Greens, Labor and Government MPs to indicate it does not support the disallowance motion, which is expected to come to a vote in the September sitting weeks.

Academy Fellow and plant scientist, Dr TJ Higgins, said many in the Australian community are looking for answers to the questions about the science of genetic modification.

“The **latest research by the Office of the Gene Technology Regulator⁵** found knowledge about what foods in Australia are genetically modified is generally poor. A simple google search demonstrates just how much conflicting and inaccurate information there is out there on genetic modification,” said Dr Higgins.

“This research also shows that while only 13% of Australians said they supported GM foods, 50% also gave conditional support. The conditional support of those who stated ‘Yes but ...’ relied on a desire to be assured GM products are regulated, or to know whether they have environmental or health benefits.”

The booklet provides a clear, concise description of genetic modification technology and draws on the knowledge and expertise of the Academy’s distinguished

Fellows and the Australian science community.

It highlights the benefits of GM products which include: a significant reduction in the use of chemical insecticides and improved productivity of existing agricultural land, which both contribute to reduced CO₂ emissions; improved nutritional value from enriched crops and increased farm incomes.

Academy Fellow and biochemist Professor Marilyn Anderson said one of the most common questions around genetic modification covered in the booklet is ‘are GM products safe?’

“The international scientific consensus is that after 20 years of commercial use, GM technologies used to date pose no greater risk to human health or the environment than similar products derived from traditional breeding and selection processes,” said Professor Anderson.

“Regulators are confident that the GM organisms and products approved so far are as safe as their conventional counterparts.”

Read the Q&A here⁶

2 premier.sa.gov.au/news/lifting-stifling-gm-moratorium-gives-farmers-a-choice

3 www.premier.tas.gov.au/releases/gmo_free_status_creates_markets_for_tasmanian_products

4 greensmps.org.au/articles/greens-move-disallow-gene-technology-regulations-2019

5 [www.ogtr.gov.au/internet/ogtr/publishing.nsf/Content/327437B632158967CA257D70008360B1/\\$File/FINAL%20Report%20-%202017%20Community%20Attitudes%20to%20Gene%20Technology%20261017.pdf](http://www.ogtr.gov.au/internet/ogtr/publishing.nsf/Content/327437B632158967CA257D70008360B1/$File/FINAL%20Report%20-%202017%20Community%20Attitudes%20to%20Gene%20Technology%20261017.pdf)

6 www.science.org.au/genetic-modification

New database to boost the visibility of women in STEM

August 01, 2019

Australian women in STEM will be more visible thanks to a new resource showcasing the depth of talent of those working in the field.

STEM Women is an online directory of women in Australia working in science, technology, engineering and mathematics (STEM).

The Australian Academy of Science developed the directory in partnership with the CSIRO, Science & Technology Australia, and the Australian Science Media Centre, with financial support from the Australian Government.

Academy President, Professor John Shine said seeing and hearing from women in STEM is a priority.

“When women from diverse STEM careers speak in the media, at public events, and in boardrooms and classrooms, they can inspire girls and women to follow in their footsteps,” Professor Shine said.

“I’d like to see more women in STEM being part of the public discourse. It’s good for gender equity, science communication and it’s good for the next generation of would-be scientists coming up through the ranks.

“And if you’re in the media looking to interview a woman in STEM or you are organising a conference or event, I urge you to use this resource.”

STEM Women links a diverse range of women with opportunities to progress their careers and personal capabilities such as speaking at conferences, being part of



Australia's first Women in STEM Ambassador, Professor Lisa Harvey Smith, speaking at the launch of the STEM Women database.

committees and boards, being nominated for awards and being interviewed in the media.

Users of the database can search for women in STEM based on their expertise, location and other search fields. Users can create their own shortlist and then message experts directly.

Minister for Industry, Science and Technology Karen Andrews urged Australian women in STEM to take part.

“To all the talented Australian women in STEM out there, I say hop online and sign up to STEM Women,” Minister Andrews said.

“You would be a visible STEM role model and a positive force for

inspiring more women and girls into STEM.”

Australia’s Women in STEM Ambassador, Professor Lisa Harvey-Smith said the great scientific and technological transformation Australia is currently experiencing belongs to STEM professionals of all genders and backgrounds.

“Let’s tell those stories in full, without prejudice—to inspire all Australians,” Professor Harvey-Smith said.

For more information:
stemwomen.org.au

Become a Women in STEM Decadal Plan Champion

August 28, 2019

"No sector can solve this alone. Leadership is required and it must be accompanied by accountability. We have much to learn from each other."

ANSTO, Raytheon Australia, Science and Technology Australia and the University of Sydney have heeded this gender equity call and today become the inaugural Champions of the **Women in STEM Decadal Plan**⁷.

The call for greater accountability and leadership was made by the Australian Academy of Science and the Australian Academy of Technology and Engineering at the launch of the decadal plan earlier this year.

The decadal plan provides a framework to guide the actions of government, industry, academia and the education sector over the next ten years, to achieve gender equity in science, technology, engineering and mathematics (STEM).

Manager of Diversity and Inclusion at The Australian Academy of Science, Louise Moes, said organisations can become a champion by aligning their gender equity activities to the six opportunities outlined in the decadal plan and committing to providing an update on progress in their gender equity journey in 12 months.



Watch the *STEM Women Curious* video on Youtube: <https://youtu.be/WDu3H81bFAo>

"Our inaugural champions have shown they are committed to make the step changes required to realise the vision of the decadal plan, have begun taking action to achieve change and want to share their journey with others," Ms Moes said.

Minister for Industry, Science and Technology Karen Andrews called on more organisations to become Women in STEM Decadal Plan Champions.

"Women make up sixteen percent of the STEM workforce in Australia, so help is needed to encourage more women to the STEM sector and keep them there," Minister Andrews said.

"We need your support and we want to know what your organisation is doing and how we can help you bring about this much needed change.

To discover and collaborate with champions' activities, to become a champion or for more information **visit us online**⁸

The Academy will host champion responses on the **STEM Women website**⁹, to provide a platform to share knowledge, act, evaluate and create accountability.

Academy launches vision for reconciliation

August 09, 2019

A nation where the traditional knowledge and cultures of Australia's First Peoples are highly valued and respected by all Australians is the vision for the **Australian Academy of Science's Reconciliation Action Plan**¹⁰, launched today.

Australian Academy of Science President, Professor John Shine, said reconciliation is a journey the Academy is proudly committed to taking.

"Our nation's future, based on a knowledge economy, will be driven by embracing skills, knowledge and experience from a diverse range of people," Professor Shine said.

⁷ www.science.org.au/support/analysis/decadal-plans-science/women-in-stem-decadal-plan

⁸ www.science.org.au/womeninstemchampions

⁹ www.stemwomen.org.au

¹⁰ www.science.org.au/about-us/diversity-and-inclusion/reconciliation-action-plan



The Academy's working group that created the plan included Fellows Professor Wendy Hoy (centre front, holding booklet) and Professor John Patrick on her left, and external advisers Mr Bradley Moggridge (third from left) and Associate Professor Jason Sharples (third from right).

"It is important that this includes and recognises that for tens of thousands of years, Aboriginal and Torres Strait Islander peoples have had a strong connection to and knowledge of this land, its waterways, oceans and abundant flora and fauna.

"It is crucial that we create opportunities to work respectfully with Aboriginal and Torres Strait Islander peoples to address issues that impact them and to support their participation in the Academy's scientific, policy, international and communication activities.

"The Reflect Reconciliation Action Plan commences a journey where, as one, we can use science to create a better nation and a better world.

"This, our first Reconciliation Action Plan, outlines the practical steps we will take to support positive change and facilitate reconciliation. In adopting better practices within the Academy, we hope that the Academy can model, encourage and influence greater diversity and inclusion across the STEM sector nationally," Professor Shine said.

Kamilaroi Water Scientist Bradley Moggridge from the University of Canberra said it had been great to watch a group of committed people and an organisation grow, accept, question itself, develop and hopefully thrive in a space outside of the normal science box.

"With RA's support this RAP is a perfect start to change," said Mr Moggridge, who was part of the Academy's Reconciliation Action Plan Working Group.

The Academy's Reconciliation Action Plan acknowledges work already underway including:

- an Aboriginal and Torres Strait Islander scientist award launched in 2018 to support emerging scientists
- continued support of the Douglas and Lola Douglas Scholarship in Medical Science; awarded to a top-ranked PhD candidate in Indigenous health research
- the Academy's school education programs, which have provided professional learning to

hundreds of teachers around Australia and have reached many Aboriginal and Torres Strait Islander teachers and students.

Future actions and opportunities outlined in the plan include:

- investigating how the Academy's national reach and influence may be able to support the involvement of Aboriginal and Torres Strait Islander people in science, though initiatives such as a professional mentoring program that involves Fellows and National Committee members
- exploring different perspectives of science with Aboriginal and Torres Strait Islander peoples and cultures
- implementing policies to support Aboriginal and Torres Strait Islander employment, including developing and implementing a policy to attract, develop, and retain Aboriginal and Torres Strait Islander staff to the Academy, incorporating the Indigenous Traineeship Program.

Read the Academy's Reconciliation Action Plan plan¹¹

National Science Week shows that science is for everyone

August 29, 2019

What do patting a Thylacene, life-changing science, bees' eyes and a Spinosaurus have in common? They were all part of the Academy's celebration of National Science Week, which engaged thousands of

11 www.science.org.au/about-us/diversity-and-inclusion/reconciliation-action-plan



Professor Robyn Williams in conversation with Professor Jenny Graves in Hobart.



Professor Clark meets some of the people whose lives his research has touched.

people across the country at events and online.

For the first time the Academy joined forces with **BeakerStreet@TMAG**¹², a pop-up science bar in Hobart which merged science with music, food and drinks, art and entertainment. Four talks featuring Academy Fellows were held on Friday 16 August at the Hobart Town Hall as part of the Beaker Street festivities.

Academy Fellows Professor Martina Stenzel, Dr Steve Rintoul, Professor Jenny Graves and Professor Mike Archer each spoke in conversation with Fellow Professor Robyn Williams or Natasha Mitchell of the ABC. The scientists fascinated their audiences with stories of their work: the many uses for the elements of the periodic table, resurrecting extinct species, genes that determine sex in animals, and the warming of the Southern Ocean.

Almost 400 people attended these engaging talks.

The Academy hosted a Canberra Speaker Series event highlighting the **science of the cochlear implant**¹³ also during National Science Week. Speakers and Academy Fellows Professor Graeme Clark, developer of the cochlear implant, and Professor Jennie Brand-Miller, renowned food scientist whose life was changed by cochlear implants, told the story of how this science changes lives.

School students took up the challenge and got creative with the periodic table and the elements in the **scienceXart competition**¹⁴ hosted by the Academy's National Committee for Chemistry, with the winners experiencing a 'behind the science' tour of Canberra. Year 2 student Makan Wang even created a dinosaur using sulfur, phosphorus, indium, oxygen, gold and ruthenium—a Spinosaurus!

To further shine a light on scientific excellence, the Academy profiled three exceptional Australian scientists and Academy Fellows on the National Science Week blog: Professor Kerrie Mengersen, Professor Toby Walsh and Professor Mandyam Veerambudi Srinivasan. **Read about their research and achievements**¹⁵

The Academy's Shine Dome also played host to InterACTIVE, a family-friendly afternoon of captivating science-related talks, performances, workshops, exhibits and discussions. Over 3000 people attended this weekend event in Canberra, engaging in topics from drones to the Moon and exploring the heritage-listed building.

National Science Week ran from 10–18 August and involved more than 1 million people in 2000 events across Australia. **More about National Science Week**¹⁶

¹² www.beakerstreet.com.au

¹³ www.science.org.au/news-and-events/events/public-speaker-series/changing-lives-science/changing-lives-science-august

¹⁴ www.science.org.au/supporting-science/national-committees-science/national-committee-chemistry/competition

¹⁵ www.scienceweek.net.au/exploring-aussie-science-stories-for-national-science-week/

¹⁶ www.scienceweek.net.au

Academy Fellow recognised for gender equality leadership

August 02, 2019



Women and Leadership Australia's Suzi Finkelstein with Professor Tanya Monro FAA.

For her contribution to the advancement of gender equality across Australia, Academy Fellow Professor Tanya Monro is the South Australian recipient of the 2019 Australian Award for Excellence in Women's Leadership.

The Awards for Excellence in Women's Leadership recognise the contribution of women at a National and State/Territory level. More specifically the awards 'recognise individual women that have, through their actions, improved the likelihood of other women within their field of endeavour having greater access to leadership equality.'

Professor Monro said she was honoured to receive the award.

"Organisations that can create cultures where talent of a diverse workforce can contribute and

where people thrive, will ultimately deliver the best outcomes," Professor Monro said.

In January Professor Monro became the first woman to lead Australia's Defence Science and Technology, replacing newly elected Academy Fellow Professor Alex Zelinsky as Chief Defence Scientist. When she was elected in 2012 Professor Monro became one of the youngest living Fellows of the Academy.

Throughout her career the physicist has also been an advocate for diversity and inclusion and a champion of the Academy's **Science in Gender Equity (SAGE) initiative**¹⁷.

See the **full list**¹⁸ of 2019 Australian Award for Excellence in Women's Leadership recipients.

Lemberg and Caughley travelling fellowships awarded

August 30, 2019

The Academy has announced the recipients of two travelling fellowships to support outstanding scientists to exchange scientific ideas. The Rudi Lemberg Travelling Fellowship has been awarded to Professor Robert Edwards and the Graeme Caughley Travelling Fellowship has gone to Dr Benjamin Allen.

Professor Robert Edwards¹⁹ is Professor of Computer Science and Biology, and Director of the

Biological and Medical Informatics program at San Diego State University. With funding from the Rudi Lemberg Travelling Fellowship he will present his research in Sydney, Perth and Adelaide, and teach a one-week microbiome analysis workshop. Professor Edwards has published leading papers on computer science, biology and bioinformatics, and has developed software that is widely used and cited by researchers around the world.

The **Rudi Lemberg Travelling Fellowship**²⁰ commemorates the contributions of Professor Max Rudolph Lemberg FAA FRS to science in Australia. The Fellowship is financed through the generous bequest of Mrs Hanna Lemberg and the Australian Society for Biochemistry and Molecular Biology.

The Graeme Caughley Travelling Fellowship will enable **Dr Benjamin Allen**²¹, Senior Research Fellow at the University of Southern Queensland's Institute for Life Sciences and the Environment, to travel to Sri Lanka, Nepal and South Africa. Dr Allen is a highly respected wildlife ecologist who specialises in invasive species and wildlife management, particularly in wild dogs in Australia. On this tour he will share recent Australian advances in best-practice wildlife management with his overseas colleagues.

The **Graeme Caughley Travelling Fellowship**²² is offered every two

17 www.sciencegenderequity.org.au

18 www.wla.edu.au/awards

19 edwards.sdsu.edu/research

20 www.science.org.au/opportunities/travel/travelling-fellowships/rudi-lemberg-travelling-fellowship

21 staffprofile.usq.edu.au/Profile/Benjamin-Allen

22 www.science.org.au/opportunities/travel/travelling-fellowships/graeme-caughley-travelling-fellowship

years to an ecologist in Australia or New Zealand, with the purpose of sharing their expertise outside the Fellow's own country. The Fellowship commemorates the work of Dr G.J. Caughley, FAA in ecology and wildlife management. It is financed through the generosity of his friends and colleagues.

Applications for the Academy's travelling fellowships will re-open in early 2020.

More about the Academy's travelling fellowships²³



Professor Robert Edwards from San Diego State University will present his research in Australia and teach a one-week microbiome analysis workshop. Photo: Scott Hargrove



Dr Benjamin Allen will share recent Australian advances in best-practice wildlife management with his overseas colleagues.

scienceXart competition uncovers emerging talent August 30, 2019

The Academy's scienceXart competition for school students has uncovered a wealth of emerging science and artistic talent and



The winners visited top science destinations in Canberra, here with Professor Greg Lane at the Australian National University's Heavy Ion Accelerator Facility.

inspired young people to think about their future careers.

The competition, which **launched in April²⁴**, asked Australian school students to think about the elements in everyday life or to create an alternative representation of the periodic table. It was held to celebrate the **International Year of the Periodic Table²⁵**.

The judges were impressed by the diverse and creative submissions.

On 16 August the four winners received a 'behind the science' tour of Canberra's top science destinations, visiting the Academy's Shine Dome, the Australian National University's Heavy Ion Particle Accelerator, Questacon and Mt Stromlo Observatory. It was a fantastic day of science and broadening horizons.

The winners

Primary School

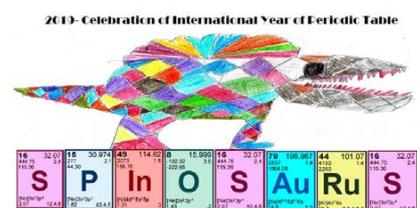
Makan Wang, Year 2: 'Sulfur, Phosphorus, Indium, Oxygen, Gold and Ruthenium are catching a Spinosaurus. Even the oldest and biggest carnivore are made of elements.'

Middle School

Lily Wigan, Year 8: 'The electro luminescent light is wrapped in wire to show that the element neon can be harnessed using human ingenuity.'

High School

Jade Williams and David Zhan, Year 9: 'Our artwork represents the periodic table through displaying the elements categorised by which cosmic phenomena created them. Starting from the bottom left going clockwise, these phenomena are: Supernova, Mankind, Yellow Dwarf Stars, Colliding Neutron Stars, Red Dwarf Stars, Red Giant Stars, Red Supergiant Stars, and Blue Giant Stars.'



2019 - Celebration of International Year of Periodic Table
Sulfur(S), Phosphorus(P), Indium(In), Oxygen(O), Gold(Au) and Ruthenium(Ru) are catching a Spinosaurus.
Designed by Makan



(Clockwise from top) The winning entries were by Makan Wang, Lily Wigan, and Jade Williams and David Zhan.

23 www.science.org.au/opportunities/travel/travelling-fellowships

24 www.science.org.au/academy-newsletter/april-2019-126/academy-hosts-chemistry-themed-art-competition-school-students

25 www.iypt2019.org

Medical science scholarship supports research on Indigenous health

August 30, 2019

The Academy has awarded the 2019 Douglas and Lola Douglas Scholarship to Dr Matthew Hare for his research on intergenerational metabolic health in Indigenous and non-Indigenous Australians.

The scholarship will help Dr Hare, a senior registrar in the Endocrinology Department of Royal Darwin Hospital and PhD candidate at Menzies School of Health Research, to complete his PhD.

‘It’s a great privilege to receive this academic support from the Academy and I hope to honour Lola Douglas’s legacy through my research. This funding will aid our work at Menzies which aims to better understand and address the growing burden of diabetes and its complications across the lifecourse and across generations, particularly among Aboriginal Australians,’ Dr Matthew Hare said.

The scholarship is funded through a bequest from the estate of the late Lola Douglas.

The Douglas and Lola Douglas Scholarship is offered as a ‘top-up’ scholarship to a high-ranked PhD candidate awarded a National Health and Medical Research Council Training Scholarship in either Indigenous or primary health care, with preference given to Indigenous health research.

It is awarded initially for one year (currently \$7000 per annum), with funding available for a maximum of two years. The award covers costs of small items of equipment, research materials, travel, or research assistance.

The scholarship is made possible through a generous bequest made by Lola Rachel Maude Douglas.

More information on the scholarship and previous recipients²⁶



Funding received by Matthew Hare will help to address the growing burden of diabetes, particularly among Aboriginal Australians.

Professor Praeger to champion global freedom and responsibility in science

August 30, 2019

Professor Cheryl Praeger, the Academy’s Past Foreign Secretary, has been appointed as a member of the International Science Council’s **Committee for Freedom and Responsibility in Science**²⁷.

Professor Praeger brings to the role many years of experience

at international organisations such as the InterAcademy Partnership for Science, the Association of Academies and Societies of Sciences in Asia and the International Mathematical Union. With a ‘passionate interest in promoting the freedom for scientists to carry out their scientific work as well as promoting responsible scientific conduct,’ Professor Praeger will work closely with international colleagues as a member of the committee.

The committee is responsible for championing freedom and responsibility in science through the Principle of Universality of Science. This includes monitoring issues of scientists’ human rights, championing freedom of movement, association and expression for scientists, access to scientific data and information, and strengthening science in developing countries. The committee secretariat operates out of the Royal Society Te Apārangi and is chaired by ISC President, Professor Daya Reddy (South Africa).



Professor Cheryl Praeger will work closely with international colleagues as a member of the Committee for Freedom and Responsibility in Science.

²⁶ www.science.org.au/opportunities/research-funding/douglas-and-lola-douglas-scholarship-medical-science

²⁷ council.science/what-we-do/freedoms-and-responsibilities-of-scientists



Australia–Americas PhD Research Internship Program participants at the Shine Dome during their orientation program. Noel Campbell from the Australian National University's Centre for Latin American Studies (centre left) spoke on the importance of strengthening links between Australia and Latin America.

Academy welcomes Australia–Americas PhD research interns

August 30, 2019

Twenty-four PhD students in education, science and engineering from Argentina, Brazil, Colombia and Mexico arrived in Canberra in mid-July to start their 2019 Australia–Americas PhD Research Internship Program.

The students are undertaking research projects hosted by Australian institutions including universities, CSIRO and the Australian Institute of Marine Sciences. The program is also expected to provide opportunities for the students to initiate personal relationships with their Australian counterparts over a period of eight to twelve weeks.

The Academy held a two-day orientation program in Canberra, where the students were welcomed by the Academy and representatives from the Department of Education, followed by site visits to the National Museum of Australia,

Tidbinbilla Nature Reserve and the Canberra Space Centre. The Academy hosted a dinner at the Shine Dome attended by Fellows and representatives of relevant embassies.

The students will return to the Academy in mid-September to share the outcomes of their research projects and experiences in Australia. This is the third year that the Academy has managed this exciting and effective program with support from the Commonwealth Department of Education. The involvement of the host institutions is highly valued.

Opportunities for scientists

August 30, 2019

Academy opportunity

Visit to the National Institutes of Health in the USA by a junior scientist

The Academy invites expressions of interest from junior scientists who are no more than 30 years of age to visit the National Institutes of Health (NIH) in the US in 2020. The proposed visit should initiate long-term collaborations and

facilitate the development of the applicant's career. This opportunity is supported by the Adam J. Berry Memorial Fund and the National Institutes of Health.

Applications close 13 September 2019

More information on the Visit to the National Institutes of Health in the USA by a junior scientist²⁸

External awards

Abel Prize

The Abel Prize recognises outstanding scientific work in the field of mathematics, including mathematical aspects of computer science, mathematical physics, probability, numerical analysis and scientific computing, statistics, and applications of mathematics in the sciences—US\$1 million

Applications close 15 September 2019

More information on The Abel Prize²⁹

CSIRO Indigenous STEM Awards

The Indigenous STEM Awards recognise, reward and celebrate

28 www.science.org.au/opportunities/travel/grants-and-exchange/visit-national-institutes-health-usa-junior-scientist

29 www.abelprize.no/c53676/artikkel/vis.html?tid=53705

the achievements of Aboriginal and Torres Strait Islander students and scientists who are studying and working in the science, technology, engineering and mathematics (STEM) field, as well as the integral role schools, teachers and mentors have in supporting Aboriginal and Torres Strait Islander students in pursuing STEM education and careers. The awards also recognise the immense value of connecting Aboriginal and Torres Strait Islander students with inspirational STEM role models, both Indigenous and non-Indigenous.

Applications open 2 September and close 27 September 2019

More information on the CSIRO Indigenous STEM Awards³⁰

Balliet Latour Health Prize

The prize recognises outstanding scientific achievements in biomedical research for the benefit of human health. Theme for 2020: Metabolic Disorders—€250,000

Applications close 30 September 2019

More information on the Balliet Latour Health Prize³¹

More external awards and prizes³²



Professor Tanya Monro, Professor Jozef Gécz and Professor Paul Hodges

Fellows update

August 30, 2019

Honours and awards to Fellows

Professor Tanya Monro FAA FTSE—Excellence in Women’s Leadership, South Australia

Professor Jozef Gécz FAA—South Australian Scientist of the Year

Professor Paul Hodges FAA and team—ISSLS Prize for Lumbar Spine Research (Basic Science), and GRAMMER European Spine Journal Award 2018/2019

Coming events

Adults-Only Science

On Monday 2 September, when the sun goes down and the stars come out, Questacon will come alive for a special adults-only night of science.

Join us to explore the iconic exhibitions and experience a dazzling array of pop-up science, interactive displays and live music.

Your guides for the evening will be 30 of Australia’s emerging leaders in chemistry, physics and medicine, fresh from mentorship with Nobel prize-winners in Germany*. A tasty selection of food, wine and beer will be available to purchase to fuel your adventures through more than 200 hands-on exhibits in themed galleries.

For only \$15, you can play, discover and be entertained by the quirks and wonders of science with some of Australia’s brightest young minds. Limited tickets available—don’t miss out!

Date: Monday 2 September

Time: 6pm-9pm

Price: \$15 pre-sale (\$20 at the door on the night)

This is an 18+ only event. Photo ID will be requested on entry and to purchase alcohol.

Falling Walls Lab Australia 2019: Three minutes that could change the world

The Shine Dome, 12:00 PM September 03, 2019

Falling Walls is an international three-day conference held in Berlin each year that was inspired by the fall of the Berlin Wall on 9



30 www.csiro.au/en/Education/Programs/Indigenous-STEM/Programs/AWARDS

31 www.frs-fnrs.be/docs/Prix/FRS-FNRS_Call_for_nomination_Health_Prize.pdf

32 www.science.org.au/opportunities/recognition/external-sources-recognition

November 1989. The question of every Falling Walls gathering is: Which walls will fall next? Falling Walls fosters discussion on research and innovation and promotes the latest scientific findings among a broad audience from all parts of society.

The Falling Walls Lab is an international forum for the next generation of outstanding innovators and creative thinkers that takes place in over 55 countries annually.

Join the audience in Canberra

On 3 September 2019, the Australian Academy of Science will host the fourth Falling Walls Lab Australia at the iconic Shine Dome in Canberra, and free registration to be part of the audience is now open.

19th Australian Space Research Conference

*Adelaide Convention Centre,
North Terrace South Australia
8:00 AM September 30 –
5:00 PM October 02, 2019*

The 2019 conference will be the thirteenth Australian Space Research Conference (ASRC) jointly sponsored and organised by the National Committee for Space and Radio Science and the National Space Society of Australia, with the support of the Mars Society of Australia. The 2019 conference will be held in conjunction with the **South Australia Space Forum**³³, convened by the South Australian Space Industry Centre.

The ASRC is intended to be the primary annual meeting for Australian researchers relating to space science and technology. It welcomes space scientists, engineers, educators, and workers in industry, government and NGOs.

The scope of the conference covers both fundamental and applied research related that applies to space science, engineering and technologies, including the following:

- Space science, including space and atmospheric physics, Earth observation and remote sensing from/of space, planetary sciences, astrobiology and life sciences, and space-based astronomy and astrophysics
- Space engineering and technology, including communications, navigation, space operations, propulsion, and spacecraft design, testing, and implementation
- Space industry
- Space archaeology and indigenous sky knowledge (or archeo-astronomy)
- Space situational awareness (SSA)
- Current and future Australian space projects
- Government, international relations and law
- Education and outreach.

There will be a number of special sessions not on specific research areas including, (1) the

national context, as seen by key government entities, the Australian Academy of Science and others, including connections to national strategic roadmaps for research infrastructure, (2) development of the 2020—2030 Strategic Plan for Australian Space Science, (3) a workshop on science communication with the media.

Registration opens on 30 August 2019. For more information please see the conference website or contact asrcconference@nssa.com.au

Book online³⁴

2019 Boden research Conference - Evolutionary transformations in vertebrate history

*Melbourne Museum,
11 Nicholson Street Victoria
8:45 AM October 02 –
5:00 PM October 04, 2019*

The past decade has seen a surge of experimental techniques for reconstructing evolutionary transitions during the 500-million year history of vertebrate life, such as colonisation of land by tetrapods and secondary invasion of water by whales, feathered flight in dinosaurs, and live mammalian birth. These shifts involve fundamental changes in ecology, behaviour, physiology and development that underlie the origins of major clades and have lasting consequences in the modern forms.

This two-and-a-half-day symposium will bring together top Australian and international

33 www.sasic.sa.gov.au/events/south-australia-space-forum

34 www.nssa.com.au/19asrc/

scientists, students, and early career researchers to present the latest advancements in investigating the evolutionary dynamics of these events, with an emphasis on methods for integrating modern and palaeontological data.

We welcome submitted talk abstracts on aspects of vertebrate evolution at every level of biological organisation, from transitions in DNA sequences within and between species, individual development, and extinct and extant groups. For others wishing to simply attend, please join us to listen, interact with our excellent speakers, and learn about the history of vertebrate life.

Attendees may also register for single days at a reduced rate, or to attend the catered social event at the Royal Society of Victoria on Friday, 4 October where esteemed Australian paleontologist John Long will reveal an exciting new fossil discovery in his talk, "From Genoa River to Quebec- how the vertebrate hand evolved".

Details on the Boden research conference award

- With the generous support of the late Dr Alex Boden AO FAA, the Academy has established a series of small specialist conferences in the biological sciences to enable active research workers in rapidly advancing fields to discuss current advances and problems.
- One conference is funded annually. Conferences are usually

of about two days duration. A sum of up to \$10,000 is provided. The supplementation of this sum is encouraged.

More info on the Boden research conference award³⁵

Keynote Speakers

Professor Michael Coates, University of Chicago, USA

All change? The Devonian-Carboniferous boundary and the origin of modern vertebrate clades

Assistant Professor Graham Slater, University of Chicago, USA

Paleo-phylogenetic perspectives on morphological and ecological diversification in Cetacea

Dr. Daniel Thomas, Massey University, NZ

Towards resolving an adaptive landscape for penguins

Dr. Emma Sherratt, University of Adelaide, Australia

Reconstructing morphological evolution from complex phenotypes and Big Data

Professor Anjali Goswami, NHM/ University College London, UK

From development to deep time: the consequences of phenotypic integration for vertebrate evolution

Dr. Hélène Morlon, CNRS, France

Phylogenetic approaches for understanding how biodiversity is distributed in space and time

Contact Information

If you wish to present a 10-15 minute talk, please submit your abstract to Christy Hipsley by 1 September 2019.

Dr Christy Hipsley
chipsley@museums.vic.gov.au

Book online³⁶

Changing lives with science—Envisioning the future of farming

Date: Tuesday 15 October 2019

Time: 5.30pm–7.00pm

Location: The Shine Dome

Price: \$15 per person

Dr Cheryl McCarthy³⁷ (University of Southern Queensland) and **Dr Laura Boykin³⁸** (University of Western Australia)

Join us this month to hear from Dr Cheryl McCarthy and Dr Laura Boykin about their research revolutionising farming and agriculture in Australia and globally.

Cheryl develops machine vision and sensing systems for agriculture. Her current projects include precision sensing of weeds for the sugar, cotton and grains industries. She has also worked on machine vision (automated imaging) projects for the beef, fodder and macadamia industries.

Laura is a computational biologist who uses genomics and supercomputing to help farmers in sub-Saharan Africa control whiteflies — pests that have caused devastation of local cassava crops. Using genetic data to understand the whitefly's evolution, Laura's research has revealed important genetic differences in various whitefly species.

³⁵ www.science.org.au/opportunities/conference-and-lecture-funding/boden-research-conferences

³⁶ museums.victoria.com.au/melbournmuseum/whats-on/australian-academy-of-science-boden-research-conference/

³⁷ staffprofile.usq.edu.au/profile/Cheryl-McCarthy

³⁸ research-repository.uwa.edu.au/en/persons/laura-boykin



Refreshments served from 5.30pm, with the talk 6.00pm-7.00pm.

With thanks to our Exclusive Presenting Partner, University of Canberra.

This is the fifth event in a six-part series. Throughout this series we will hear remarkable untold science stories. Join us for tales of innovation, research, breakthroughs, and how science is solving the big challenges of our time. **Visit the academy's event page**³⁹ for more information and tickets to other talks.

Book online⁴⁰

Catalysing change: moving towards a circular economy

A circular economy is one that rejects the typical cycle of 'make, use, dispose' in favour of re-using and recycling as much as possible.

Extending the life of products and materials prevents the over-generation of waste and recovers the full value of products. This creates new business opportunities and revenue streams, while minimising the environmental impact of mining,

resource extraction, refining and manufacture.

It is a huge opportunity for businesses to transform their practices from 'take, make and throw away' to a system that designs for abundance not scarcity.

In light of the potential benefits of a circular economy, Future Earth Australia and the Australian Academy of Science are facilitating a seminar and workshop to bring leaders in the fields of science, economics, entrepreneurship, government, industry and consumers together with young researchers to build the networks that will underpin a successful circular economy.

Speakers:

- Professor Veena Sahajwalla (science)
- Professor Scott Valentine (economics)
- Ashleigh and Jaine Morris from Coreo (entrepreneurship)
- Professor Kate Auty (government)
- More speakers to be announced

Dinner: 6pm–9pm, 19 November

Workshop: 9am–5pm, 20 November

Location: The Shine Dome, 15 Gordon Street, Canberra

Audience: Honours level students with an interest in the circular economy or the Sustainable Development Goals

Places available: 36

Application process: To apply to attend please complete the application form using the link below. Applications close Sunday 29 September, and will be assessed by the Future Earth Australia Early-Career Researcher and Practitioner team. Successful applicants will be notified by Monday 14 October. Travel to and from Canberra and accommodation on Tuesday 19 November will be covered for successful applicants.

Apply online⁴¹

³⁹ www.science.org.au/news-and-events/events

⁴⁰ www.eventbrite.com.au/e/changing-lives-with-science-october-tickets-53416135098

⁴¹ aas.eventsair.com/circular-economy/application