

EMERITUS

The Australian National University Emeritus Faculty e-magazine

Nation must invest in R&D, says new head of Academy of Science

Australia must invest in research and development to meet global challenges, according to the ANU nanotechnology and physics researcher who will become the next president of the Australian Academy of Science in May 2022.

Distinguished Professor Chennupati Jagadish will be the first Australian of Indian descent to lead the academy when he takes up his role in May 2022. The academy is one of the nation's leading science organisations and provides independent, authoritative scientific advice to the Australian Parliament and public.

Professor Jagadish said he was humbled by his election as president and the chance to lead the academy. "I never imagined, when I came to

Australia with a two-month-old baby and two-year contract 31 years ago, that one day I'd be elected a Fellow of the academy and then go on to lead the organisation," he said.

"I look forward to being a champion for the cause of science and scientific excellence. As a nation, we must adequately invest in research and development to meet national and global challenges, such as climate change and future pandemics."

ANU Vice-Chancellor and Nobel laureate Professor Brian Schmidt said Professor Jagadish was the perfect person to lead the academy.

"In Jagadish, Australian science and scientific research is in incredibly safe and inspirational hands," he said.

"He is not only a world-leading and globally respected researcher whose discoveries are being applied in incredible ways; he is passionate about science and the powerful role it has in making our lives and our world better.

"Jagadish is also an incredible mentor who has nurtured the next generation of scientists Australia and the world need."

Professor Jagadish's research focuses on the science of extremely small things, including some of the tiniest lasers that are thinner than a

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human hair. He was made a Companion of the Order of Australia (AC) in 2016 for his services to physics and engineering.

His work has led to the creation of lightweight flexible solar cells, methods to split water to create new clean energy sources, and treatments for people with dementia. His pioneering research in the field of meta-optics, the manipulation of light, offers new ways to advance telephony and light-based Wi-Fi.

The retiring president of the academy, Professor John Shine AC, was delighted at Professor Jagadish's election. "Professor Jagadish is highly regarded as a scientist and understands the importance of Australia's international scientific engagement, having research collaborations in 30 countries around the world himself," he said.

Executive Committee members re-elected

At the Emeritus Faculty's Annual General Meeting on 8 December, members of last year's Executive Committee were re-elected for 2022 with the following assignment of offices:

Chair: James Fox. Deputy Chair: Larry Saha. Secretary: Jan O'Connor. Treasurer: Peter Scardon. Public Officer: Prame Chopra.

Additional roles were assigned as follows:

Assistant Treasurer: Prame Chopra. Membership Secretary: Ailsa Solley.

Collegiate Talks: Craig Reynolds, Ian Keen. Project Seminar Organiser: Ian Keen. East Coast Australia Project: Verna Rosling, Brian Lees. Molony Room Building Custodian: Jan O'Connor.

Verna Rosling to be co-opted to the ANU Emeritus Faculty Committee for 2022.

The financial statements for the year ended 30 November 2021 showed a surplus of \$814.48. Expenses of \$8,760.52 were covered by income of \$9,575. The faculty held assets totalling \$7,922.05 at 30 November 2021.

Ian Mathews, ANU's oldest new graduate, dies

Ian Mathews, the former editor of the Emeritus Faculty newsletter and a distinguished former editor of *The Canberra Times*, died at his home in Garran on 28 November after a brief illness. He was 88.

After some ten years of study, Ian completed the requirements for his Bachelor of Arts degree in the final semester of 2021. However, declining health indicated that he would not live to receive his degree at the annual graduation ceremony early in 2022.

Consequently the Vice-Chancellor, Professor Brian Schmidt, went to Ian's home on 25 November to conduct a bedside graduation ceremony and confer the degree in the presence of Ian's family. Ian said the presentation had completed his "wonderful journey" as a student.

Ian's funeral service was held at St Andrew's Presbyterian Church on 14 December. An obituary covering Ian's life in the media, in community organisations and his involvement with the Emeritus Faculty is in hand.

UA hails Labor plan as ‘investment for the future’

Government investment in universities was an investment in the future of all Australians, the chair of Universities Australia, Professor John Dewar, said on 5 December when welcoming the Australian Labor Party’s tertiary education policy.

“A strong and vibrant tertiary sector—university and vocational education—is fundamental to Australia’s recovery,” he said, after the ALP announced that, in government, it would provide 20,000 more university places as well as increasing support for TAFE.

“Universities play a central role in national prosperity and can power the post-COVID economic recovery by equipping graduates with the skills they need to drive that recovery,” Professor Dewar said.

His comments echoed the promise made that day by the Opposition Leader, Anthony Albanese, that Labor would deliver “secure, well-paid jobs by investing in the skills Australia needs to drive future economic growth”.

Mr Albanese said the ALP’s Future Made in Australia Skills Plan would focus on key areas of skills shortages by providing new places at university and TAFE. It would be “good policy for jobs, good policy for people looking to train or retrain, and good policy for businesses, which need more skilled workers”.

He said Australia today had 85,000 fewer apprenticeships and traineeships compared to 2013, while at the same time it was becoming harder and more expensive to go to university.

The proportion of applicants who received an offer of a place at university had fallen every year since the Liberal Government slashed university funding, he said. This year the offer rate fell to its lowest level in years.

20,000 places to fix skills shortages

Labor, he said, would deliver up to 20,000 new university places that would help to fix areas of skills shortages and fill future skills needs by training people for jobs that included engineering, nursing, technology and teaching.

“Places will also be prioritised for universities offering more opportunities for under-represented groups, such as people in regional, remote and outer-suburban areas, those who are the first in their family to study at university, and First Nations Australians,” Mr Albanese said.

Labor’s vision was to seize opportunities to make Australia a renewable energy superpower, a manufacturing powerhouse, the skills and education capital of Asia, and a society that guaranteed secure work, cheaper childcare, and stronger Medicare.

The chief executive of Universities Australia, Catriona Jackson, said a well-resourced university sector would fulfil the ever-increasing demand for skilled graduates.

“By 2024-25, the young adults of the mid-2000s baby boom will be ready to begin their studies, and more places will be needed to ensure they have that life-changing opportunity,” she said.

“Over the next five years, the National Skills Commission predicts more than 500,000 new jobs will be created that require a Bachelor’s degree or higher. Skilled graduates bring bright ideas, critical thinking and the latest knowledge to solve our nation’s challenges, improve business productivity and change lives.”

Reimagined ties crucial to meeting challenges

Australia needed to reimagine its relationship with Japan if it was to cope with the challenges that both countries face at home and abroad in the 21st century, a leading Japan expert at ANU argues in a new report.

Associate Professor Shiro Armstrong, Director of the Australia–Japan Research Centre, said Australia needed to increase its already strong ties with Japan in the face of accelerating economic, environmental and social changes in both countries and a dramatically changing geopolitical environment.

“Japan is Australia's benchmark relationship in Asia,” he said. “It is the world's third largest economy, Australia's second largest source of investment and, until a fall in commodity trade in 2020, was Australia's second largest trading partner.”

Although Australia's relationship with Japan has never been closer, it needed to be reimagined if it is to survive and thrive in the 21st century, Associate Professor Armstrong argues in [*Reimagining the Japan Relationship*](#), a report commissioned by the Australia–Japan Foundation.

A key challenge for both countries to solve in partnership was how to address climate change and meet future energy needs—Australia supplies two-thirds of Japan's key industrial materials and almost a third of its entire energy needs. Associate Professor Armstrong says the structure of this trade will have to change fundamentally as both countries decarbonise their economies.

New institutional frameworks

“The energy and demographic transitions under way in both countries drive the agenda that is needed to transform the bilateral relationship and its regional and international roles,” he said.

Bruce Miller AO, chair of the Australia–Japan Foundation, said the “ambitious and forward-looking report” came at an important time in the relationship.

“It's about developing new institutional frameworks that thicken the relationship at all levels,” he said. “Now is the time to invest in the capacity to better understand and engage Japan as it becomes more important for Australia.”

Among key recommendations, the report advocates creating a joint Australia–Japan energy initiative involving government and other stakeholders to accelerate and facilitate the energy transition, and urges Australia to designate Japan as a *most favoured partner*, thus broadening the traditional definition of most-favoured nation and expanding favourable treatment to Japan.

The report also advocates establishing a Dialogues for Change program involving business, government, academia and community leaders focused on gender diversity and the movement of people; a joint Australia-Japan study to frame the agenda for comprehensive security in the region; expanding the New Colombo Plan to include a postgraduate stream; and investing in exchanges and study programs that make use of the existing 107 sister-city and 553 sister-school relationships.

Opportunity central to international strategy

International education was one of Australia's great success stories, but the nation needed to "do things differently in the medium term," the Minister for Education and Youth, Alan Tudge, said on 26 November when releasing the Australian Government's Strategy for International Education 2021-2030.

The strategy outlined measures to support the rapid return of international students when borders reopened in early December and create new opportunities for a more sustainable and diverse education sector.

It emphasises the desire to have more diversity among the international student population to reduce financial risk and maximise the Australian and international student experience, Mr Tudge said in a joint statement with the Minister for Trade, Tourism and Investment, Dan Tehan, and Immigration and Citizenship Minister Alex Hawke.

"We want to see our international student market flourish again, but we have to ensure that the Australian student experience is also prioritised," Mr Tudge said. "This means that our public universities need to have a higher priority on diversity in their classrooms.

"Some public universities have as many as 80 per cent of their international students from one country. This creates financial risk for those institutions, but it can also diminish the student experience—for both Australian and international students."

The government will introduce new transparency measures around student diversity, including a diversification index.

Scope to provide offshore courses

Mr Tudge said there was also an "enormous opportunity" to increase Australia's international student market by providing high-quality offshore courses, in a similar manner to the United Kingdom. "We could potentially be educating 10 million students in this manner in a decade or two, supporting the development of our neighbours as well as providing a revenue source for our universities," he said.

The government has also announced targeted measures to support the international education sector, with more than \$37 million available to providers that were most affected by COVID-19. The measures include extended regulatory fee waivers and additional grants. Changes to visa settings will also provide flexibility for international students.

Universities Australia acknowledged the international education strategy as a step towards recovery, saying that the government recognised the contribution of international education to the economy and the role it would play in recovering from the COVID-19 pandemic.

Universities Australia's Chief Executive, Catriona Jackson, said the sector lost \$1.9 billion last year and would continue to face multi-year challenges due to the pandemic, and prominently, the impact of international border closures.

"Australia's international education sector provides a \$40.3 billion boost to the country's exports and supports around 250,000 jobs," Ms Jackson said.

"That's why the decline in international commencements, now more than 40 per cent compared to pre-pandemic levels, poses very serious challenges for our universities and our ability to play the fullest part in national recovery."

International education ‘vital’ for recovery

Fostering international education and research is vital to Australia’s post-COVID economic recovery, according to the Group of Eight, but it warns there is no evidence that international students will prefer online learning to study on campus.

The Go8, comprising Australia’s leading research-intensive universities, is in a strong position to advance Australia’s international education sector, but warns that achieving diversification will take time in an increasingly competitive global environment.

“The Go8 is well placed to build on our enduring and existing global research partnerships with like-minded nations, expanding on relationships such as the Five Eyes nations and the Quad, which includes India and Japan,” Go8 chief executive Vicki Thomson said.

“These deep relationships will be important, as it must be recognised that we operate in a highly competitive global environment in which Australia is not the only country seeking to rebuild our economy post the pandemic. We must provide education and research in response to student demand as well as government policy.

“The Government’s goal to achieve greater diversification will take time. China’s dominance of the world’s international education market is unlikely to change in the short term. As demonstrated during COVID, however, the Go8 has the capacity to pivot and adapt to changing circumstances, resulting in international students sticking by our universities and continuing their studies offshore,” Ms Thomson said.

“There is no strong evidence, however, to assume that international students will accept online study as a continued alternative to the on-campus experience. As the pandemic has progressed, students have become less satisfied with the online experience and early indications are that the opening up of the US, UK and Canada to face-to-face education for international students could see a move of international students to these markets,” she said.

At August 2021, Go8 universities recorded nearly 85,000 enrolments, with 55 per cent of these in the identified Go8 strengths of research and postgraduate education. Targeting the education of this cohort to sectors such as artificial intelligence, cybersecurity, defence and space would build quality workforce capacity for industries of strategic importance to Australia, Ms Thomson said.

CSIRO appoints director of artificial intelligence centre

The CSIRO has appointed Stela Solar as inaugural director of the National Artificial Intelligence Centre. Ms Solar, currently global director of AI Solutions at Microsoft, will take up duties in Sydney late in January 2022.

CSIRO Chief Executive Larry Marshall said he was excited to bring a talented Australian home to lead the new centre.

“The world is racing to find the next big breakthrough in AI. Here in Australia, we’re focused on using AI to solve key national challenges that can really make a difference for all Australians,” he said.

US tops rankings in Asia power analysis

The Covid-19 pandemic had driven down the “comprehensive power” of almost all 26 nations surveyed in the Lowy Institute’s *Asia Power Index 2021*, reflecting their weakened ability to respond to and shape their external environments.

The annual analysis, issued by the think-tank on 6 December, placed the United States at the top of the rankings among the countries assessed, it having resisted the overall downward trend and overtaken China on two critical rankings. China was ranked second, after its comprehensive power was seen to have fallen for the first time. However, both superpowers faced difficulties—the US confronted by declining economic influence and China having no “undisputed primacy” in the Indo-Pacific.

The *Asia Power Index* was inaugurated by the Lowy Institute in 2018 to measure the resources and influence of 26 nations as a way to assess their relative power. It evaluates international power by examining 131 indicators across eight thematic measures, from military capability and diplomatic influence to cultural influence and future resources. The 2021 *Index* was compiled by Hervé Lemahieu and Alyssa Leng.

The *Index* argues that “vaccine diplomacy is the new currency of geopolitics”, and found the United States led by virtue of having donated and delivered more than 90 million vaccine doses to the region—twice as many as China, the next largest donor in aggregate terms.

Region becoming more ‘bipolar’

The *Index* saw the region becoming “less multipolar” and more bipolar, with Japan and India lagging behind China, and Australia becoming more reliant on the United States.

The authors caution that while US partners were enhancing their collective deterrence to achieve a military balance, Asia’s “deepening security dilemma presents a significant risk of war”.

“The result of greater bipolarity is that US allies, such as Australia and Japan, and even key balancing powers, such as India, have never been more dependent on American capacity and willingness to sustain a military and strategic counterweight in response to China’s rise,” the authors write.

“Likewise, Washington has recognised that it will not be able to do this by itself. That will require the commitment of allied and non-allied US partners to collectively deter China from altering the status quo in the Indo-Pacific through the use of military force.”

Though on current trends China’s military expenditure was forecast to lag behind US defence spending until the end of the decade, “Beijing can more easily concentrate its expanding military assets in key theatres in its near abroad.”

This year, for the first time, Indonesia was ranked among the top ten in the *Index*’s overall power rankings. Jakarta was now seen as the most diplomatically influential player in Southeast Asia, and President Joko Widodo had “cemented his position as a leading statesman on the regional stage”.

The *Index* can be downloaded as a PDF but there is an excellent interactive website version at <https://power.lowyinstitute.org/>

Items of note

Impetus for university-industry partnerships

Universities Australia has welcomed recommendations aimed at building on partnerships between industry and the higher education sector, following the release this month of the University-Industry Collaboration in Teaching and Learning Review.

The review, led by Emeritus Professor Martin Bean CBE and Emeritus Professor Peter Dawkins AO, makes seven recommendations to strengthen the relationship between universities and business.

Universities Australia's Chief Executive, Catriona Jackson, said Australia's universities had been leading the way on creating work placement opportunities for students.

"The latest study tells us that, every year, more than 450,000 students take up formal work placements, projects with industry or community groups and practical simulations of the tasks that they will be doing on the job," Ms Jackson said.

"Our only constraint has been the number of places available for students. Extra support for business and universities to provide work-integrated learning opportunities will pay significant dividends for graduates and national prosperity."

Incentives needed to decarbonise economy

Incentives to achieve net zero carbon emissions by 2050 needed to be directed at ways to decarbonise everything in the economy, but both sides of politics "have quite simply got it wrong", according to a public policy expert at the Crawford School of Public Policy at the ANU.

"If you design policy properly, you give the right incentives to the private sector to bring technology to market," said Professor Warwick McKibbin, Director of the Centre for Applied Macroeconomic Analysis. "The problem we have with the government's roadmap is that it's all about technology, but there's nothing that says how that technology is going to be taken up."

Australia was now at a point where it could expand the non-fossil-fuel sectors and change the mix in the economy, though the policies to do this should have been done a decade ago, he said.

"You need to have a mix of carbon pricing and green infrastructure to get the economic and environmental outcomes to be better balanced," he said.

"The beauty of green infrastructure is that the government is spending money, which is a great stimulus for the economy coming out of the COVID-19 pandemic, but over time it also raises private sector productivity which enhances the economy."

Professor McKibbin has co-authored three papers that outline political and economic steps to achieve net zero carbon emissions by 2050. They are: [Mitigating Climate Change: Growth-Friendly Policies to Achieve Net Zero Emissions by 2050](#) ; [Low Hanging Fruit in Australia's Climate Policy](#) ; and [Climate Policies and Monetary Policies in the Euro Area](#) .

New copper surface polishes off bacteria

A new micro-nano copper surface that kills bacteria more than 100 times faster and more effectively than standard copper could help combat the growing threat of antibiotic-resistant superbugs.

The new product is the result of collaborative research between RMIT University, Melbourne, and Australia's national science agency, CSIRO, with findings just published in the journal *Biomaterials*.

Copper has long been used to fight different strains of bacteria, including golden staph, because ions released from the metal's surface are toxic to bacterial cells, but this process is slow when standard copper is used.

"A standard copper surface will kill about 97 per cent of golden staph within four hours," RMIT University's Distinguished Professor Ma Qian said.

"Incredibly, when we placed golden staph bacteria on our specially-designed copper surface, it destroyed more than 99.99 per cent of the cells in just two minutes." This was achieved without the assistance of any drug.

Diary dates

Meet the author events

Five Meet the Author events are planned for February 2022. The first two will be advertised in mid-January, when full details will be available. Enquiries can be made to Colin Steele at colin.steele@anu.edu.au.

Scheduled events are:

February 2: *Guardian Australia's* political reporter Amy Remeikis will talk with *Guardian* political editor Katharine Murphy about Amy's new essay *On Reckoning*, in the cinema at Kambri cultural centre.

February 4: Dr Norman Swan will talk with the ABC's chief political correspondent, Laura Tingle, on his book *So You Think You Know What's Good for You?* Venue: Manning Clark theatre, Kambri cultural centre. Rescheduled from 2021

February 15: Nobel laureate Professor Peter Doherty will talk with Tracy Smart about his book *An Insider's Plague Year* at the Manning Clark theatre, Kambri cultural centre. Rescheduled from 2021

February 19: Film critic and broadcaster David Stratton will discuss his book *My Favourite Movies* with Alex Sloan at the National Film and Sound Archive.

February 21: Jess Hill will discuss her Quarterly Essay *The Reckoning: How #Metoo is Changing Australia*.

Jeffrey Smart at the National Gallery

An extensive exhibition of works by renowned Australian artist Jeffrey Smart opened on Saturday, 11 December. The exhibition, which celebrates the centenary of Smart's birth, features more than 100 works that span the

Adelaide-born artist's career, from his early works from the 1940s to his last painting, *Labyrinth*, completed in 2011.

Ancient Greeks

The National Museum of Australia's exhibition *Ancient Greeks: Athletes, Warriors and Heroes*, opened on 17 December and will run till 1 May. The exhibition, mounted with the collaboration of the British Museum, explores competition through sport, politics, drama, music and warfare, illuminated by more than 170 objects from the British Museum collection.

Administration

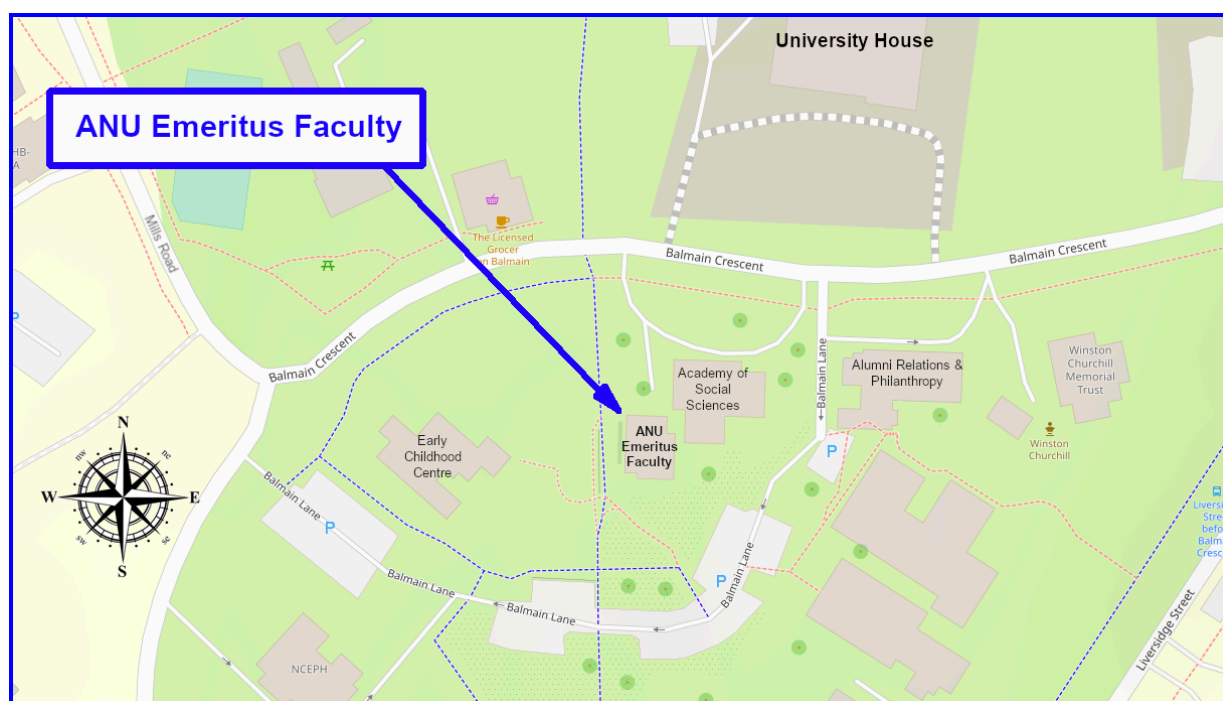
Arrangements for ANUEF room bookings

Requests to book the Molony Room should be addressed to the Secretary of the ANU Emeritus Faculty, Jan O'Connor, at jantancress@gmail.com or 6247 3341.

Finding the Molony Room

The Molony Room is at 24 Balmain Crescent, on the south side of Balmain Crescent almost opposite University House.

It is Building 1c on <https://tinyurl.com/yckuknbj>, set back between 22 Balmain Crescent (the Acton Early Childhood Centre) and 26 Balmain Crescent (the Academy of the Social Sciences). Four free car parking spaces reserved for ANUEF members visiting the Molony Room in the Balmain Lane Car Park immediately south of the Molony Room. The room is marked on: <https://tinyurl.com/y7gsyqgh>



The next issue of the Emeritus Faculty newsletter will be published in February.