

EMERITUS

The Australian National University Emeritus Faculty e-magazine

ANU will have key role in nuclear development program: Schmidt

The Australian National University would “probably” provide the nuclear science education for the commander of Australia’s first nuclear-powered submarine, the Vice-Chancellor, Professor Brian Schmidt, told the Submarine Institute of Australia conference in Canberra on 9 November.

This was likely, he said, “because the only practising experimental nuclear physicists at Australia's universities are across the lake at ANU”.

Moreover, in the broader view, “this is what the ANU was established to do,” he told delegates.

ANU’s status as the national university was not just a label, but was enshrined in its foundational parliamentary act that specified one of its functions as encouraging, and providing facilities for, research and postgraduate study in subjects of national importance.

For more than 70 years, Professor Schmidt said, ANU had been the only Australian university providing comprehensive training in nuclear physics from undergraduate to postdoctoral level. It maintained one of only three heavy ion accelerators in the world. That enabled ANU to incorporate “hands-on experimentation into our teaching and attract international research collaborations, including from the US Department of Defense”.

University ‘uniquely placed’ to help government

Professor Schmidt noted that 50 per cent of Australia's PhDs in physics came from ANU. The university had also just completed the \$200 million development of a new, world-class facility for the Research School of Physics. This, “the most complex scientific laboratory building ever constructed in an Australian university”, would support teaching and research into quantum physics, precision optics, space applications and novel devices.

ANU was also “uniquely placed” to help government to manage the regulatory obligations associated with nuclear technology. It was already training Commonwealth officials through the Graduate Certificate in Nuclear Technology Regulation and its Masters in Nuclear Physics. It also had partnerships in nuclear science with leading universities in the US and UK, including those that were part of their nations’ nuclear-powered submarine programs.

However, commissioning nuclear-powered submarines would be one of the biggest training and workforce development challenges Australia has faced. It would require the integration of the military, industrial, governmental and academic fields to create “an entirely new sector of the economy”.

“The task goes beyond training the crews of future submarines,” Professor Schmidt said. “We can't just acquire nuclear technology without being able to provide best-practice nuclear stewardship.

“The challenge includes building the nuclear knowledge across all elements of the enterprise including corporate, nuclear physics, engineering, legal, policy, security and human resources across government and industry.”

Decisive steps needed to be taken immediately to meet that challenge. It would require a whole-of-government commitment to identify the skills and resources required, and a new approach to partnering with the universities that would deliver the training.

Professor Schmidt said three things were needed to meet the challenge.

Nuclear stewardship a priority

First, to build a national nuclear enterprise, government should establish and define nuclear stewardship as a sovereign industrial capability priority to provide investment certainty. “These priorities are intended to ensure access to essential skills, technology, intellectual property, financial resources and infrastructure in critical areas to the Defence mission,” he said. That would have to include appropriate financial support for universities.

Second, government should consider establishing an AUKUS career-pathways program for high-achieving school-age students that would provide long-term development and career progression in critical skills. While nuclear science should be the priority in such a program, it should also include advanced capabilities in cyber and computing, engineering, space and quantum physics.

Thirdly, government should remove barriers in funding rules that prevent universities from being more dynamic in meeting national capability priorities. The new government's Australian Universities Accord process offered an opportunity to examine how universities and government could work together to tackle national challenges.

“The introduction of nuclear-powered submarines will require substantial development of Australia's scientific and engineering capacity,” Professor Schmidt said.

“This is a huge workforce development challenge. It is one we can meet but it requires government to invest in, and partner with our universities now to build the capacity we need in the future.”

CSIRO chief leaves ‘lasting legacy’

The Chief Executive of the CSIRO, Dr Larry Marshall, would leave a lasting legacy to the national science research agency, the Minister for Industry and Science, Ed Husic, said on 15 November when it was announced that Dr Marshall would retire in mid-2023.

When Dr Marshall completes his third and final term in June next year, he will have been CSIRO’s longest-serving chief executive in 50 years.

“Dr Marshall has steered CSIRO through a rapidly changing scientific environment, a period of much scientific promise amid global turbulence, particularly through the COVID pandemic,” Mr Husic said.

Among many initiatives, Dr Marshall led the creation of the CSIRO Innovation Fund – Main Sequence Ventures. The program has helped to build 42 deep technology companies, creating more than 1,200 technology jobs.

Shortly after joining the agency, Dr Marshall helped to develop the CSIRO ON program, a national science accelerator. ON has supported 3,314 researchers from 52 Australian research organisations, leading to 66 new companies, which have raised \$114.6m in investment capital and \$115.8m in grants.

In 2020 Dr Marshall led the establishment of CSIRO’s Missions program, bringing together research agencies, universities, industry, government and the community to tackle urgent and complex problems facing the country. His experience in founding companies to impel innovation played an important role in his leadership of the agency.

“I particularly welcomed the opportunity in August to launch CSIRO National Vaccine and Therapeutics Lab alongside Dr Marshall,” Mr Husic said.

“CSIRO’s contribution to Australia’s resilience during the pandemic cannot be overstated, and it will play a vital role in developing sovereign capability in the years to come.”

Collignon provides wide-ranging survey of pandemic

Professor Peter Collignon gave a wide-ranging, well-illustrated and authoritative account of the Covid-19 pandemic and its development locally and globally when he delivered the annual Emeritus Faculty Lecture on 12 October.

Professor Collignon, a microbiologist and infectious diseases expert at the School of Clinical Medicine, ANU Medical School, titled his lecture ‘Coronavirus (COVID-19): Where were we? Where are we now? What do we need to learn so we do better in the future?’ After his lecture Professor Collignon responded to a range of pertinent questions that provided excellent further discussion.

His lecture was filmed, but unfortunately it was posted without its introduction and without the questions that followed. A link to his lecture is available on the ANU Emeritus Faculty Website under ‘Events’.

Australians endorse cyber regulation

Cyber attacks are one of the fastest-growing types of crime confronting Australians, according to Professor Nicholas Biddle, co-author of an ANUpoll survey. The results were released early in November.

Incidents like the Optus breach affected trust in the whole system of data governance, and Australians were crying out for stronger regulation and better protection, he said.

The recent attacks on Optus and Medibank have alerted Australians to the threat posed by cyber criminals. The ANUpoll survey found that one Australian adult in every three had been exposed to data breaches in the past 12 months.

The survey of almost 3,500 adults was conducted during October as part of the ANUpoll series of surveys. It found that 32.1 per cent said they or a member of their household had been the victim of a data breach.

“Roughly-one third of adult Australians, or around 6.4 million people, have been the victim of a breach in the last 12 months,” said Professor Biddle, of the ANU Centre for Social Research and Methods.

“In comparison our survey found only 11.2 per cent of Australians had been the victim of serious crimes like burglary or assault in the last five years.

“As our lives become more and more dominated by data, so too does our exposure to data-related crime. This is a serious issue that needs serious attention.”

The survey found the age group most likely to fall victim to data breaches was aged 25 to 34, with 41.5 per cent of this cohort saying they had been exposed.

It also found that in the two months preceding the survey, trust had declined in the ability of key organisations to ensure data privacy. That applied particularly to telecommunication companies. In addition, over the past 12 months there had been a large increase in the number of Australians who thought governments should intervene when it came to data protection.

“Almost all Australian adults, 96.2 per cent, said companies that do not adequately protect consumer data should face significant sanctions,” Professor Biddle said.

“And 92.8 per cent of Australian adults think government regulation of new technologies is crucial for consumer protection. At the same time, 90.6 per cent think government should regulate companies’ use of data.”

Go8 welcomes jobs, skills legislation

The Group of Eight has welcomed the passing of Jobs and Skills Australia (JSA) legislation through Federal Parliament on 27 October as “a major step towards addressing Australia’s workforce crisis”.

Go8 Chief Executive Vicki Thomson said Australia's research-intensive universities would collaborate with the new agency to help to deliver the skilled workforce the nation needs.

"Australia needs the advanced skills taught in our universities," she said. "Rapid technological change across all sectors of the economy has resulted in unprecedented demand for a highly skilled workforce.

"More than nine out of 10 jobs to be created will require post-secondary education — jobs in science, technology, engineering and maths (STEM) are predicted to grow by 14.2 per cent, twice as fast as non-STEM jobs at 7.4 per cent.

"Go8 universities educate 110,000 high-quality graduates each year — doctors, engineers, lawyers, graduates in AI, space, quantum computing and cyber security, all of whom are in high demand from existing and emerging industries.

"Australia's workforce crisis is building to catastrophic levels in some sectors. JSA is a worthy vehicle with which to identify what needs to be done and how to address the crisis. Its pleasing to see that government has recognised that universities must be part of the forward agenda of JSA.

"We are committed to working with the Albanese government, JSA, industry and business to deliver the skilled workforce we need and boost the nation's productivity and economic prosperity," she said.

Research lights way to better solar

Researchers at ANU have found a way to improve the performance of silicon photovoltaic (PV) or solar cells in a way that will help to push the cells' performance closer to their theoretical limit and increase their efficiency.

The addition of "passivating contacts" between the metal and silicon parts of the solar cell make it more productive.

"Each day the sun produces significantly more energy than needed to power the whole planet. The only limitation is our ability to economically convert it to electricity," said Mohamed Ismael, lead ANU researcher and PhD candidate.

Solar cells convert light energy in the form of photons into electrical energy. As it stands, solar cells don't operate at their maximum capacity because of substantial electrical losses associated with the direct contact of metals with silicon.

"Transition metal oxides such as titanium oxide have many qualities that make them ideal as passivating contact layers," said Dr Lachlan Black, a Research Fellow at the School of Engineering, Computing and Cybernetics.

"This isn't a new idea, but the way in which we combined these layers has produced better results and higher operating voltages than anything previously reported."

The research team is hoping to develop the technology to a point where it can be applied to industrial solar cells on a large scale. The PV market is a multi-

billion-dollar industry, with silicon solar cells contributing to 95 per cent of all commercial solar cells. They are expected to remain dominant for the foreseeable future, given their advantageous properties.

“If successful, we could see our technology in almost all new solar panels installed on your roof or utility-scale solar plants,” Dr Black said.

Some practical issues still need to be addressed before the technology can be implemented, but the PV community is already working to solve these challenges.

“Improving the efficiency of solar cells guarantees more clean energy at a reduced cost. This not only helps to address climate change, but opens up new economic opportunities for this low-cost clean energy,” Mr Ismael said.

Diary dates

Handel’s ‘Alcina’ at Llewellyn Hall

Soprano Emma Matthews will sing the title role of the amorous sorceress when National Opera, Canberra, presents Handel’s *Alcina* at the Llewellyn Hall on 8 and 10 December. The opera, drawn from Ariosto’s *Orlando Furioso*, recounts the misadventures of knight Ruggiero and his companions on an enchanted island controlled by Alcina and her sister Morgana. The production is dedicated to Dame Joan Sutherland OM, AC, DBE, and National Opera’s new patron, Richard Bonyng AC, CBE. Sutherland made her debut in this opera at La Fenice in 1960, in a production directed by Franco Zeffirelli. Sutherland and Bonyng then made the premiere recording of the work for Decca two years later. Graham Abbott will conduct the Canberra Symphony Orchestra with a cast that includes Rachelle Durkin, Russell Harcourt, Sally-Anne Russell and John Longmuir. Prices are from \$75 to \$197.50.

Feminine power through the ages

A new exhibition, ‘Feared and Revered: Feminine Power through the Ages’, will open at the National Museum of Australia on Thursday, 8 December. The exhibition, from the British Museum, explores the power and diversity of female spiritual beings in cultural traditions and beliefs around the world and shows how goddesses, demons, witches, spirits and saints have shaped understanding in a variety of cultures. The exhibition features more than 160 objects drawn from the British Museum’s collections, spanning six continents and 5,000 years, from 2800 BCE to the present. The exhibition closes next August.

‘Small Works’ on show at Beaver Galleries

Beaver Galleries will stage its ‘Small works’ exhibition at the Deakin premises from 24 November to 23 December. The exhibition involves small artworks in a range of media — ceramics, glass, sculpture, paintings, weaving and works on

paper — by artists including Crispin Ackerman, Wendy Teakel, Benjamin Edols, Diane Fogwell and Julian Laffan.

Meet the Author events

November 30, 6pm: Katharine Murphy will talk with Malcolm Farr about *Lone Wolf: Albanese and the New Politics*, her *Quarterly Essay* that discusses an eventful year in politics, offers a portrait of Prime Minister Anthony Albanese, and looks at future challenges. Katharine Murphy is the political editor of *Guardian Australia*, having worked in Canberra's parliamentary press gallery since 1996 for the *Australian Financial Review*, *The Australian* and *The Age*. She won the Paul Lyneham Award for Excellence in Press Gallery Journalism in 2008 and has twice been a Walkley Award finalist. She was awarded an honorary doctorate by the University of Canberra in 2019. *Lone Wolf* surveys the political balance and the national mood, and asks if the success of the "teals" and the Greens means that the centre of politics has shifted. Where could, and should, the Labor government be ambitious? Malcolm Farr is the former National Political Editor for News.com.au and is a contributing writer to *The Guardian*. The vote of thanks will be given by John Warhurst AO, Emeritus Professor of Political Science at ANU. Cinema, Kambri Cultural Centre.

December 6, 6pm: Niki Savva will be in conversation with Kerry-Anne Walsh on Niki's new book *Bulldozed. Scott Morrison's fall and Anthony Albanese's rise*. The book continues her survey of nine years of Coalition government, from Tony Abbott to Scott Morrison. Savva's political trilogy began with *The Road to Ruin*, which examined the workings of former prime minister Abbott and his office, and *Plots and Prayers*, her account of the coup that overthrew Malcolm Turnbull and installed Morrison. In her new book she lays out the final unravelling of the Coalition at the hands of a resurgent Labor and the so-called teal independents. Veteran gallery journalist Laurie Oakes describes it as "The gripping inside story of how Scott Morrison went from miracle man to roadkill. Savva portrays a fatally flawed leader who trashed his government, his party, and his legacy." Niki Savva is one of the most senior correspondents in the Canberra Press Gallery. Kerry-Anne Walsh is one of Australia's most respected independent political commentators and communication strategists and leads Counsel House's crossbench advisory practice. The vote of thanks will be given by Virginia Haussegger AM, former Chair and Founding Director of the 50/50 by 2030 Foundation at the University of Canberra, where she is an Adjunct Professor.

December 15, 6pm: Award-winning Kurdish-Iranian writer Behrouz Boochani will be speaking about his new book, *Freedom, Only Freedom: The Prison Writings*. Translated and edited by Omid Tofighian and Monne Mansoubi, who will also attend, the book covers issues in migration, refugee rights and politics. During six years of imprisonment in Australia's offshore migrant detention centre, Boochani witnessed the suffering of his fellow refugees, experiences that culminated in *No Friend but the Mountains*, which won the 2019 Victorian Prize for Literature and the Nonfiction category. He has also won the Special Award at the NSW Premier's Literary Awards, the Australian Book Industry Award for Nonfiction Book of the Year, and the National Biography Prize. In *Freedom, Only Freedom*, Boochani's collected writings are combined with essays

from experts on migration, refugee rights, politics, and literature. Together they provide a challenging account not only of one writer's experience and resilience, but of the systems that hold thousands of people in migrant camps around the world. Behrouz Boochani is a Visiting Professor at Birkbeck Law School, Associate Professor in Social Sciences at the University of NSW and, among other awards, winner of an Amnesty International Australia 2017 Media Award. Cinema, Kambri Cultural Centre.

Registrations at anu.edu.au/events. These events are held in association with Harry Hartog Bookshop. Books will be available for purchase on the evening in the Cultural Centre foyer. Pre-event book signings will be available from 5.30pm, and again after the event.

A celebration of Cressida Campbell

The work of painter and printmaker Cressida Campbell is the subject of a major exhibition at the National Gallery of Australia, which runs till 19 February. Combining keen observation with a delicacy of line, Campbell's woodblock paintings and prints capture the overlooked beauty of the everyday. Through her views of a working harbour or burnt bushland, an arrangement of nasturtiums or a plate of ripening persimmons, the artist celebrates the transitory moments of life. The exhibition aims to show the depth and virtuosity of Campbell's work, from intimate interior views to panoramic coastal landscapes.

Five decades of Australian life in photographs

Viewfinder: Photography from the 1970s to Now, brings together selected work from the National Library's extensive photography collection to show how Australia has changed over the past five decades, and how those who have seen Australia through the viewfinder have adapted to and used new techniques as photography has evolved, from film to digital. The exhibition, curated by Matthew Jones, shows how Australians' image of themselves and their society has developed in the past 50 years. It also highlights the significant technological advances and increasing diversity of styles, approaches and techniques that photographers have used. The exhibition will run until 13 March 2023. Entry is free and booking is not required.

Items of note

Universities Australia welcomes ARC review

Universities Australia has welcomed the release of the consultation paper for the review of the Australian Research Council Act.

"Australia boasts a world-class research system. It is in the best interest of Australia and Australians that we keep it that way," Universities Australia Chief Executive Catriona Jackson said on 10 November.

The review was “the next step in ensuring we have a research council with strong governance, robust peer review and genuine transparency at its core”, she said.

“These functions underpin the critical work of our researchers and will help take Australia’s research to new levels, generating even greater social and economic gains for our nation.

“Our world-class universities have a big role to play. University researchers perform almost all of Australia’s pure research and a big slice of applied research.”

She said universities looked forward to engaging with the review panel to achieve the best outcomes for researchers. Earlier this year UA members had committed to nine principles that would underpin the ARC as Australia’s premier independent agency for funding for non-medical research.

Success chimes for ANU composer

Composer Caspian Scott, a second-year student at the Australian National University, has won a major international prize with his piece *Idle Spires for Carillon*.

The competition is run by Iowa State University in the United States and his piece was only the second piece he had ever composed for the instrument.

The National Carillon a familiar sight in the capital. As an instrument, Caspian describes it as being “kind of like a big bell tower”. Carillonists play the suspended stationary bells from a keyboard of wooden batons and pedals, called a clavier.

Caspian's interest in the unique instrument was sparked by a class assignment. “I was quite excited by the idea of creating a short one-minute piece and potentially hearing my work played from Canberra's carillon one day,” he said.

He decided to give the Iowa competition a shot, but “was pretty shocked to find out I had won: it's quite amazing.”

He admits the carillon is a "fairly niche" instrument. He's used to composing for string quartets, jazz bands and even the guitar, but his success has given him more confidence in his ability to work with any instrument.

Academic processions for December graduations

Academic staff are invited to take part in the academic processions for the graduation ceremonies that ANU will conduct on 13, 14, 15 and 16 December at Llewellyn Hall, School of Music.

Those wishing to take part are asked to select the ceremony or ceremonies they wish to attend, and to register by Friday, 9 December.

The Graduations Office [ext. 59862] can provide further information or assistance.

Study identifies more pumped hydro sites

Researchers from the Australian National University have released a detailed study outlining 1,500 additional locations across the country that could potentially be used to build pumped hydro energy storage (PHES) facilities.

If developed, the sites would be important in developing cost-effective, reliable, and 100 per cent renewable electricity grids. The study follows the research team's identification of 530,000 potential pumped hydro sites across the globe in 2019.

PHES requires a pair of water reservoirs at different elevations, allowing water to be pumped from one reservoir to another. The electricity generated during this process can be stored and used at a later time.

“On sunny and windy days, water is pumped uphill from the lower to the upper reservoir. On calm days or at night, the water returns downhill from the upper to the lower reservoir to generate power,” said Professor Andrew Blakers, from the College of Engineering, Computing and Cybernetics.

“This process can occur continuously for more than 50 years, making PHES a viable long-term storage solution to support solar and wind-generated electricity and help the nation reach its target of achieving net zero,” he said.

The *ANU Bluefield PHES Atlas* is designed to help accelerate Australia's adoption of renewable energy systems and help the country reach its emissions reduction targets. Bluefield PHES sites are locations where a usable water reservoir already exists. This means only one more reservoir needs to be built in order to achieve a PHES “pair”.

Bookshelf

Vietnam Task

The 5th Battalion, The Royal Australian Regiment, 1966–67

Author: Robert J. O'Neill

ISBN (print): 9781760465377

ISBN (online): 9781760465384

Publication date: November 2022

ANU Press. DOI: <http://doi.org/10.22459/VT.2022>

On 24 May 1966, 800 men of the 5th Battalion, The Royal Australian Regiment, landed at Nui Dat, in Viet Cong territory. For the next 12 months they were faced with the task of restoring peace, civil law and regular commerce to the Vietnamese of Phuoc Tuy province. This book is a detailed record of those months in the monsoon jungles — of the problems that were faced and the solutions that were found.

Captain O'Neill's position as battalion intelligence officer enabled him to view the war from the standpoint of the battalion as a whole. However, he does not omit description of personal feelings — towards the Viet Cong, the jungle

environment and the Vietnamese people, as well as the other Allied forces involved in the war. Most of the book was written on the spot in Vietnam. On operations or at battalion headquarters, Captain O'Neill jotted down details of the war, putting the events of each day in order. Not only is this a factual account of the battalion's activities, but also a vivid and compelling picture of the war in Vietnam from the soldier's point of view.

Living Art

Indonesian Artists Engage Politics, Society and History

Edited by Elly Kent, Virginia Hooker and Caroline Turner

Asian Studies series

Asian Studies Monograph 17

ISBN (print): 9781760464929

ISBN (online): 9781760464936

Publication date: November 2022

ANU Press DOI: <http://doi.org/10.22459/LA.2022>

Living Art: Indonesian Artists Engage Politics, Society and History is inspired by the conviction of so many of Indonesia's Independence-era artists that there is continuing interaction between art and everyday life. In the 1970s, Sanento Yuliman, Indonesia's foremost art historian of the late 20th century, developed that concept, stating: "New Indonesian Art cannot wholly be understood without locating it in the context of the larger framework of Indonesian society and culture" and the "whole force of history". The essays in this book accept Yuliman's challenge to analyse the intellectual, socio-political and historical landscape that Indonesia's artists inhabited from the 1930s into the first decades of the new millennium, including their responses to the COVID-19 pandemic.

Extensively illustrated, *Living Art* contributes to the acknowledgement and analysis of the diversity of Indonesia's contemporary art and offers new insights into Indonesian art history, as well as the contemporary art histories of Southeast Asia and Asia more generally.

Parliament

A Question of Management

By V. M. (Val) Barrett

ISBN (print): 9781760465452

ISBN (online): 9781760465469

Publication date: October 2022

ANU Press. DOI: <http://doi.org/10.22459/PQM.2022>

Scholars and practitioners have studied parliament and its potential reform from an institutional perspective, but until now few authors have looked in depth at the internal relationships among parliamentary actors, their competing beliefs and their influence on parliament's effectiveness. Parliament is overwhelmingly an agonistic institution, and competition for status, resources, influence and control has pervaded its administration and impeded reform. Parliaments appear to struggle with the concept of institutional management. The doctrine of exclusive cognisance or sole jurisdiction implies

that parliament, and only parliament, should retain control of its internal business and processes. But why is parliament considered to be unique among public institutions, and why do parliaments appear to resist or even defy attempts to manage them more effectively?

This book examines parliamentary management in the national parliaments of Australia and the United Kingdom. It attempts to provide a reliable account of how parliamentary officials and members of parliament carry out their complex roles and how contemporary public management approaches might help them.

Administration

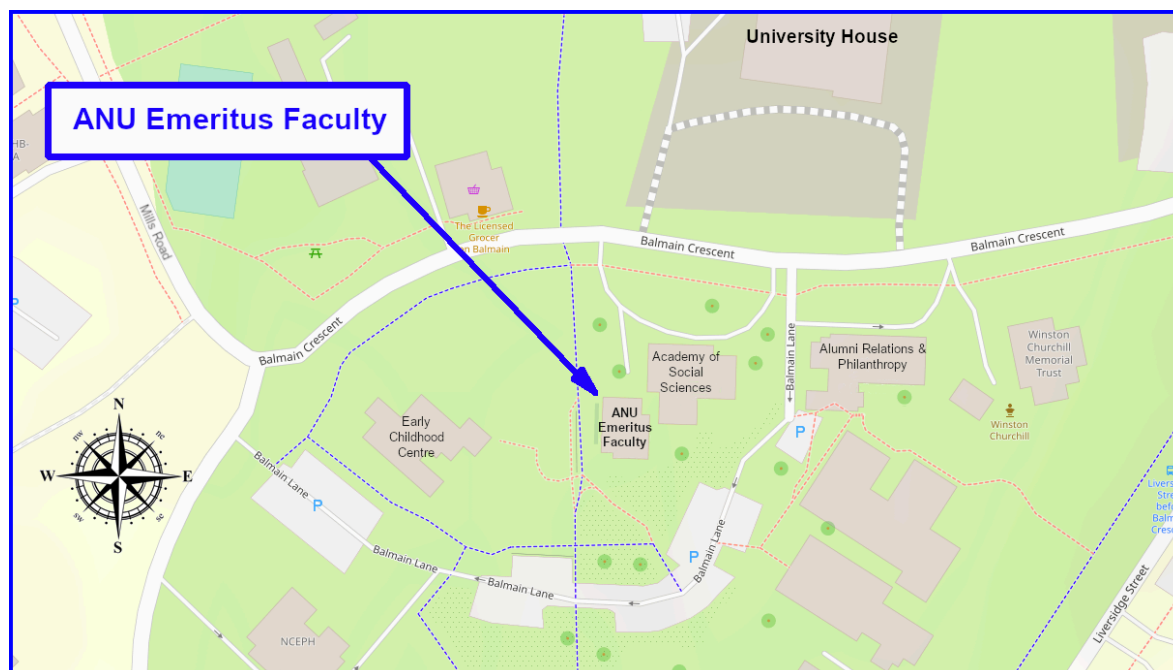
Arrangements for ANUEF room bookings

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>



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