



MACQUARIE
University

**FACULTY OF SCIENCE
AND ENGINEERING**

6 March 2019

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From the Dean

NEWSLETTER

The NSW Government has made a significant investment of \$2.5 million to support the establishment of a synthetic biology 'Biofoundry' at Macquarie University. This new facility will enable exciting research that will contribute to the discovery of new drugs and a range of other significant industries.

I am excited to announce that Mark Casali has been appointed as the Director of the Macquarie node of Australian Astronomical Optics (AAO-Macquarie). Mark comes to us from the European Southern Observatory (ESO) in Germany where he has been leading astronomical instrumentation development. He will take up his appointment at the end of April. Under Mark's leadership, AAO-MQ will create the next generation of astronomical instrumentation, expand its presence in the fields of optics and sensing, and pursue new opportunities in medicine and defence. My thanks to Mike Steel who has been the Interim Director of AAO-MQ.

I've been encouraged by the new insights and understanding developed through Project Catalyst—our review looking for ways to enhance and grow the role that our technical team plays in supporting and driving teaching, learning and outreach across FSE. From the workshops and interviews we held last year, key themes for the project to focus on have been identified. We'll be running discrete sub-projects focussing on each of these themes this year, and I encourage you to get involved.

In research news from the Faculty: the first accurate 3D map of our galaxy reveals the Milky Way is warped and twisted, cane toads are picking up some shady habits, and an Aussie eucalypt can remember past exposure to extreme heat.

Our second [Gender Equity Week](#) is taking place this week. I encourage you to explore the diverse program of events being held to celebrate Macquarie's progress towards gender equity, and inspire the next part of our journey to create an inclusive culture for all. In particular, this afternoon's [2019 Macquarie Women Shaping the Future Symposium](#) will feature Engineering's Noushin Nasiri and Physics and Astronomy's Devika Kamath.

Read on for information about the 15 new staff who have joined the Faculty since the beginning of the year, the seven vacancies we're currently advertising, and the details of three events you may be interested in.

If you want to know more about what's happening across the Faculty, follow our Faculty Twitter account [@MQSciEng](#) and my personal account [@BarbaraMesserle](#). If you've got news to share, please tweet about it and include our Faculty handle so we can see it and retweet. If you're not on Twitter, then email us at fse.execdean@mq.edu.au and we'll share the news.

Regards,

Barbara

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Macquarie to lead nation in synthetic biology research with \$2.5m grant



Research into new technologies that could pioneer breakthroughs in the biomedical and agriculture sectors has received a significant boost, with the NSW Government investing \$2.5 million to support the establishment of a synthetic biology 'Biofoundry' at Macquarie University.

Synthetic biology is an emerging multidisciplinary field of science which involves the deliberate design and manufacture of new biological structures, parts, devices and systems. These become the key components in a number of potentially revolutionary applications.

This new field draws on biology, biochemistry, engineering, biophysics and computer science.

Sakkie Pretorius, Deputy Vice Chancellor, Research at Macquarie University says this funding announcement will greatly support and extend Macquarie's research capability in synthetic biology.

"Macquarie University brought the field of synthetic genomics to Australia and is a recognised global leader in synthetic biology research," he says. "As the only Australian university in the international Yeast 2.0 consortium, we have united some of the best minds in biology, engineering, computer science, social sciences and business."

"Synthetic biology is at forefront of new discoveries in medicine and health," says Barbara Messerle, Executive Dean of the Faculty of Science and Engineering.

"The new Biofoundry at Macquarie University will enable exciting research that will contribute to the discovery of new drugs and a range of other significant industries. We are very excited to house this tremendous new facility."

[Find out more](#)

Pictured above researchers Tom Williams, Monica Espinosa, Ian Paulsen with Minister for Finance, Services and Property Victor Dominello and DVCR Sakkie Pretorius. Image: Jesse Taylor.

A new leader for astronomical optics in Australia



Macquarie University has appointed Mark Casali as the Director of the Macquarie node of Australian Astronomical Optics (AAO-Macquarie). He will take up his appointment at the end of April 2019.

A globally-regarded leader with over 30 years of experience in the design and construction of world class instrumentation, Mark currently leads the technology development and second-generation ELT instrument programs for the European Southern Observatory (ESO), which operates a suite of powerful telescopes based in Chile including the VLT facility of 8 metre telescopes, and the new 39 metre Extremely Large Telescope, currently under construction.

“Mark brings a deep expertise in optical astronomical instrumentation to Australia,” says Barbara Messerle, Executive Dean of the Faculty of Science and Engineering.

The AAO-Macquarie team joined the University in mid-2018 as part of a major restructure of optical astronomy in Australia. “AAO-Macquarie’s optical engineers and researchers have a long history of achievement in the creation of powerful instruments for the world’s telescopes,” Barbara says. “Under Mark’s leadership, AAO-Macquarie (AAO-MQ) will create the next generation of astronomical instrumentation, expand its presence in the fields of optics and sensing, and pursue new opportunities in medicine and defence,” she says.

“We are thrilled to be welcoming Mark back to Australia,” says Interim Director Michael Steel. “Working with our partners in the new AAO Consortium, Mark’s leadership positions AAO-Macquarie to ideally capitalise on Australia’s strategic partnership with ESO for the benefit of all Australian astronomers, and create new opportunities for astronomical optics technology to have impact in research and industry.”

[Find out more](#)

Photo of Mark Casali and Joana Correia at the ESO 50th anniversary gala event by [M. McCaughrean \(ESA\)/ESO](#).

Project Catalyst to enhance and grow role of our technical team



In November 2018 the Faculty kicked off Project Catalyst—a review looking for ways to enhance and grow the role that our technical team plays in supporting and driving teaching, learning and outreach across FSE.

The project is also looking at how to improve career progression opportunities for technical team members.

The Project Catalyst Core Team participated in three full-day workshops in November and December, and interviewed colleagues in a variety of roles across the Faculty to build an understanding of the current structure and how best to improve it.

From this they identified key themes for Project Catalyst to focus on:

1. **Resource allocation:** Provide capability (equipment and people) across existing teams so that cross disciplinary knowledge is created and high quality research, teaching and commercial services can be done predictably and effectively.
2. **Engagement and career:** Actively support the careers of technical staff, creating collegiality with faculty and peers across FSE, while providing continuity of service as the Faculty evolves and grows.
3. **Safety:** Ensure obligations are defined and articulated clearly and consistently to keep people safe in a world where there is a perceived conflict of interest between safety and productivity.

This year we will be running discrete sub-projects to focus on each of these three themes. The first sub-project looking at resource allocation is already underway.

I've been encouraged by the new insights and understandings developed through the project already, and look forward to the final recommendations after these sub-projects are complete.

The Milky Way is warped



The first accurate 3D map of our galaxy reveals its true shape: warped and twisted.

Astronomers from Macquarie University and the Chinese Academy of Sciences have used 1339 'standard' stars to map the real shape of our home galaxy in a paper published in *Nature Astronomy* last month.

They found the Milky Way's disc of stars becomes increasingly 'warped' and twisted the further away the stars are from the galaxy's centre.

"We usually think of spiral galaxies as being quite flat, like Andromeda which you can easily see through a telescope," says Richard de Grijs, a co-author and astronomer from the Department of Physics and Astronomy.

Trying to determine the real shape of our galaxy is like standing in a Sydney garden and trying to determine the shape of Australia. But for the past 50 years there have been indications that the hydrogen clouds in the Milky Way are warped. The new map shows that the warped Milky Way disc also contains young stars. It confirms that the warped spiral pattern is caused by torque from the spinning of the Milky Way's massive inner disc of stars.

[Find out more](#)

Image of a slightly exaggerated impression of the real shape of our warped and twisted Milky Way by Xiaodian Chen.

Cane toads: what they do in the shadows



Cane toads are picking up some shady habits, according to a new study co-authored by a Macquarie University researcher.

Toads in Western Australia have been spotted awake and active during the day in deeply shaded habitats, despite the species usually being nocturnal in Australia and other parts of the world.

However nearby cane toad populations at more exposed sites remained active only at night.

“We didn’t expect them to change such a fundamental behaviour,” says Simon Clulow from the Department of Biological Sciences. “Particularly given their nocturnal neighbours were only four to seven kilometres away.”

“This suggests that cane toads are particularly good at changing their behaviour in response to their environment, something known as behavioural plasticity, which might assist their invasive spread into new environments.”

The research, which was published in *Scientific Reports*, looked at cane toad populations near the invasion front in El Questro Wilderness Park in WA’s Kimberley region from 2013 to 2015.

[Find out more](#)

Photo of a juvenile cane toad (*Rhinella marina*) in Emma Gorge, Western Australia by M. G. Swan.

Trees remember heatwaves



An Aussie eucalypt can ‘remember’ past exposure to extreme heat, which makes the tree and its offspring better able to cope with future heatwaves, according to new research from Macquarie University.

This finding could have important implications for restoring ecosystems and climate-proofing forestry, as the number of hot days and heatwaves increase due to climate change.

“Unlike animals, which can bury deeper into the soil or flee to cooler locations, plants are stuck in one spot and so must be able to withstand extreme conditions in situ,” says Biology’s Rachael Gallagher, senior author of the paper published in the journal *Functional Ecology*.

Rachael and her team looked at how different populations of *Eucalyptus grandis* seedlings, commonly known as flooded gum or rose gum, responded when they were exposed to a simulated four-day 42°C heatwave in the lab.

The researchers found that seedlings whose parents had experienced more days of extreme heat in the wild were better able to cope with the simulated heatwave conditions, because they made more protective proteins to protect their cells from heat stress.

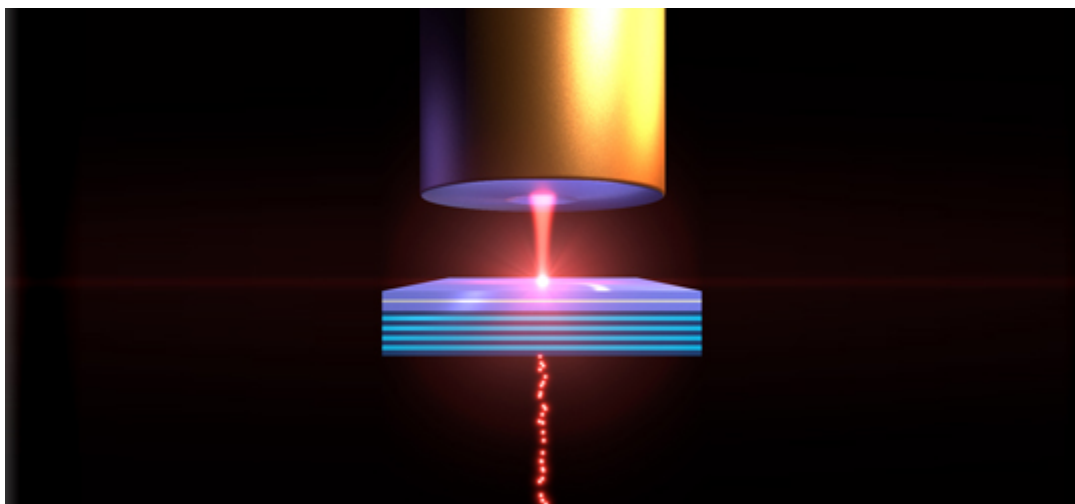
These protective proteins act as molecular chaperones: they transport other proteins to their correct locations within the cell, and help the cell to keep functioning normally despite the stress it is under.

“This is a significant new finding,” says Rachael, “we have shown that trees have a ‘molecular memory’ for extreme heat.”

[Find out more](#)

Photo of the flooded gum or rose gum (*Eucalyptus grandis*) by [Geoexplore](#).

A polariton filter turns ordinary laser light into quantum light



An international team of researchers led out of Macquarie University has demonstrated a new approach for converting ordinary laser light into genuine quantum light.

Their approach uses nanometre-thick films made of gallium arsenide, which is a semiconductor material widely used in solar cells. They sandwich the thin films between two mirrors to manipulate the incoming photons.

The photons interact with electron-hole pairs in the semiconductor, forming new chimeric particles called polaritons that carry properties from both the photons and the electron-hole pairs. The polaritons decay after a few picoseconds, and the photons they release exhibit distinct quantum signatures.

The team's research was published last month in the journal *Nature Materials*.

While these quantum signatures are weak at the moment, the work opens up a new avenue for producing single photons on demand.

"The ability to produce single photons on demand is hugely important for future applications in quantum communication and optical quantum information processing," says Thomas Volz from the Department of Physics and Astronomy and the senior author on the paper. "Think unbreakable encryption, super-fast computers, more efficient computer chips or even optical transistors with minimal power consumption."

Currently single-photon emitters are typically created by materials engineering—where the material itself is assembled in such a way that the 'quantum' behaviour is built in.

But this standard approach faces serious limitations at smaller and smaller scales because producing identical single-photon emitters by pure materials engineering is extremely challenging.

"This means our approach could be much more amenable for massively scaling up, once we're able to increase the strength of the quantum signatures we're producing. We might be able to make identical quantum emitters from semiconductors by photon nanostructure engineering, rather than by direct materials engineering," says Guillermo Munoz Matutano, lead author of the paper.

[Find out more](#)

Artist's impression of the polaritonic photon conversion platform by Andrew Wood.

Critically endangered grey nurse shark mapped for the first time



A study mapping the eastern Australian grey nurse shark population has found it has declined rapidly over the last few decades, with only 400 breeding sharks left.

The findings reveal that additional protection measures are needed to halt further population declines of the critically endangered shark.

The number of breeding individuals remaining is not enough to maintain genetic health and reduces the ability of the population to survive future environmental changes.

The grey nurse shark suffered major declines from overfishing in the '60s and '70s because they were considered dangerous and are easy to kill, being relatively slow-moving and aggregating in regular areas. This resulted in controversial closures of fishing areas.

Despite designated protection areas, the study found that grey nurse sharks tend to disperse out of these areas and get caught as bycatch or sometimes killed by entanglement in the shark meshing program, as they travel between the safe zones.

Lead author of the study Adam Stow from the Department of Biological Sciences says future conservation efforts need to mitigate threats outside of protected areas and consider the impact of recreational diving, fishing and the use of shark nets.

"Accidental capture of grey nurse sharks occurs outside the existing protected areas, and in addition to direct mortalities from capture and stress, many sharks are found tangled in fishing gear which can cause delayed fatality from punctured organs," says Adam.

"This is the first estimate of the effective population size, or the number of breeders in the population, and reveals an alarmingly low number of sharks left."

[Find out more](#)

Promiscuous females and their role in evolution



Males have to make less of an effort to mate with promiscuous female fruit flies, making the quality and quantity of their semen all the more important in the competition to fertilise the females' eggs.

This also leads to male flies repeatedly mating with the same female, according to a paper published in *Nature Communications* by researchers from Macquarie University, the University of Oxford and the University of East Anglia, who looked into the eyes of thousands of fruit flies.

Over the last 50 years, biologists have realised that females in most animal species mate with multiple males during their lifetimes, in contrast to the Victorian-era fairytale of the monogamous female. However they didn't know how this behaviour influences how fruit flies and other species evolve.

Biological Sciences' Juliano Morimoto and colleagues from the UK wanted to test the theory that increasing female promiscuity would reduce male competition before mating, while increasing their competition to fertilise the female's eggs after mating.

To do this, they first genetically manipulated female *Drosophila melanogaster* fruit flies to increase their promiscuity.

By deleting a sex peptide receptor, they reduced the time the females weren't sexually receptive after mating and therefore led to them mating more frequently.

Hundreds of the more promiscuous females were marked with paint and their interactions with male flies monitored. The researchers painstakingly counted the thousands of offspring produced and identified their fathers based on eye colour.

"We found that when females mate promiscuously, male attractiveness is less important," says Juliano. "Instead, having a large ejaculate might be what males need to win the war."

[Find out more](#)

Photo of a promiscuous female fruit fly (*Drosophila melanogaster*) marked with paint by [The Wigby Lab](#).

The quest for the missing proteins in rice



Researchers have identified over 5,700 new proteins in rice and are calling for a global effort to find the remaining missing proteins, in a new study co-authored by Macquarie University.

The international team of scientists from Australia, Iran and Japan say there are an estimated 35,000 proteins encoded by the rice genome, and yet we still don't have experimental evidence for 82 per cent of them.

This is important because rice is the major food source for more than half the world's population, and in order for it to grow in warmer climates and with less water we will need to better understand rice at the molecular level.

"The genome of rice was completed and published in 2001," says Molecular Sciences' Paul Haynes, a co-author of the study. "So surely we know enough about it now that we should be able to manipulate how it grows to meet our needs? Well, we don't."

"What we have for rice, like most of the well-studied plant and animal species, is a good first approximation of what the gene sequence actually encodes for, but there is still a very large amount of information yet to be confirmed."

Rice is Australia's ninth largest agricultural export and generates approximately \$800 million in revenue each year, but this productivity comes at a significant cost.

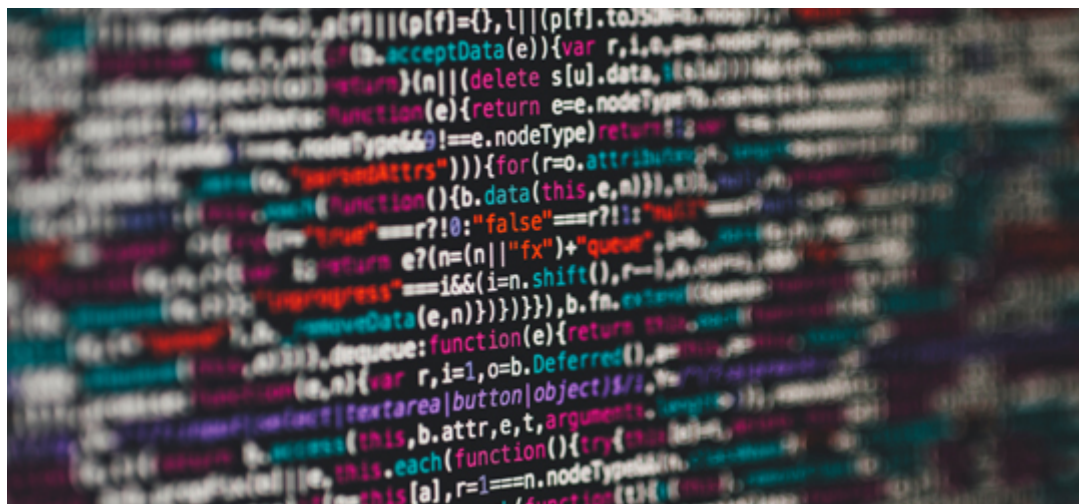
Australian farmers use large amounts of water to irrigate their crops. The increasing demand for this water is threatening the sustainability of their rice production.

"It is imperative that we find ways to make rice better adapted to environments with warmer climates and less available water," says Paul.

[Find out more](#)

Photo of rice (*Oryza sativa*) by [Pille-Riin Priske](#).

Australian census data at risk



Macquarie University researchers have identified a vulnerability in the perturbation algorithm used by the Australian Bureau of Statistics for its online tool TableBuilder, which enables users to query data from the Australian Census.

In a paper published last month, Hassan Asghar and Dali Kaafar from the Optus Macquarie University Cyber Security Hub have shown the algorithm is faulty and puts the highly sensitive original census data at a major risk of being revealed.

“We demonstrated how an attacker, who may not know the perturbation parameters, can not only find any hidden parameters of the algorithm but also remove the noise to obtain the original answer to some query of choice,” says Dali. “None of the attacks we presented depend on any background information.”

Implications of this attack go beyond re-identification risks he says, as the attack makes it possible to reveal values intended to be hidden by the algorithm and hence can reconstruct the original census data.

The researchers found that the original data could be retrieved with a probability of more than 96 per cent with only 400 queries.

“We believe that since the TableBuilder tool allows access to some of the most sensitive and personal data, it is important for the Australian public to know what security and privacy measures are in place behind usage of their data,” says Dali.

[Read the paper](#)

Photo by [Markus Spiske](#).

Can blood or plasma donations lower PFAS levels?



Can regular blood or plasma donations reduce the level of chemicals in firefighters' blood? That's the question Melbourne's Metropolitan Fire Brigade and the United Firefighters Union are hoping to answer with a new research project.

MFB and the UFU have announced a clinical pilot study into per- and polyfluoroalkyl substances, known as PFAS. The study will focus on the impacts of blood and plasma donation on PFAS levels.

MFB has commissioned Macquarie University to conduct the research, which will be undertaken over a 12-month period, with 350 firefighters and staff participating.

Environmental Sciences' Mark Taylor says the study is important for firefighters who have one of the highest exposures to PFAS through their occupation.

"This is the world's first systematic intervention study to assess the efficacy of using phlebotomy (blood and plasma donation) to lower PFAS levels," he says.

"As such, it will provide critical insight into possible future treatments."

[Find out more](#)

Macquarie-designed antennas shine in space



A twin-array antenna system designed by Engineering's Karu Esselle and his team has been launched into space aboard the world's first entirely Ka-band CubeSat satellite Audacy Zero.

Audacy Zero was deployed on 3 December last year, from a SpaceX Falcon 9 rocket.

Capitalising on the larger bandwidth available in the higher frequency Ka-band, the antenna system solves the problem of the limited data rates of lower frequency bands which are commonly used in conventional CubeSats. It thereby enables high-speed data communication between the satellite and Earth.

The industry collaboration came about after a senior Audacy engineer attended Karu's 2017 IEEE Antennas and Propagation Society Distinguished Lecture at the Texas Instruments headquarters in Silicon Valley, USA. Audacy is a spin off company from Stanford University.

"We believe this is the first Australian-designed antenna system deployed in space since CSIRO-designed antenna systems in the Australian FedSat satellite launched in 2002," says Karu.

Audacy Zero is a demonstration satellite, testing the technology for the space relay network Audacy is planning to develop in 2020. It aims to provide continuous connectivity to commercial and other CubeSats.

Without such a network, a CubeSat can be seen from a fixed ground station only for a few minutes per day and that is often not enough to download all the data collected by the CubeSat.

As a result of the collaboration, Macquarie University has signed a partnership agreement to become part of the Audacy Alliance, a consortium of industry-leading spacecraft product and technology providers that aim towards an open global standard for spacecraft communication.

[Find out more about Audacy Zero](#)

Photo of Karu Esselle and his team of researchers holding a component of an antenna system.

Congratulations corner



Congratulations to Biology's Callum McDiarmid (pictured) who has been awarded a [Fulbright Future Scholarship](#), which he will undertake at the Cornell Lab of Ornithology.

Callum is studying the behaviour and reproduction of long-tailed finches for his doctorate. While at Cornell, he'll be looking at the structure of the finches' chromosomes, and using the growing field of bioinformatics to answer big evolutionary questions, like how the long-tailed finch has evolved into two sub-species.

In a case of faster data wins again, congratulations go to Physics and Astronomy's Mick Withford and the Modular Photonics team, whose On-chip Mode Selective Multiplexer was named a 2019 Lightwave Innovation Reviews Honoree.

This follows Mick's visit to San Francisco earlier this month to receive [the Prism Award](#) in the category of Optics and Optomechatronics for the Plug n Play Omplex Passive Silica Chip, which retrofits legacy fibre-optic networks quickly and cheaply to speed up data flow without the need to recable.

And congratulations to Maciej Maselko who has joined Biology as a CSIRO Synthetic Biology Future Science Fellow.

Maciej's project will be using synthetic biology tools to engineer synthetic strains of *Aedes aegypti* mosquitoes. Normally this species of mosquito spreads diseases like Zika, dengue, chikungunya, and yellow fever. Maciej's work will hopefully result in mosquito strains that are resistant to these diseases, and can be used to replace mosquito populations that do spread disease and to scale up mosquito control programs.

Research in tweets

We've been sharing snippets of our recently published research and Faculty members being mentioned in the media on Twitter.

Here are some recent highlights from [@MQSciEng](#).

RT @noushinnasiri: Good things come in small packages and this could be one of the best! [Watch](#): The #UV #Sensors only as big as your fingertip can let you know when your #skin starts to become damaged even before you feel it!

RT @Macquarie_Uni: Inventing Wi-Fi; developing drought-resistant crops; medical breakthroughs in keyhole surgery. Industry funding of academic research can be a win-win situation, [explains Anna @grocholsky, Director of Commercialisation and Innovation](#)

'How the dinosaurs went extinct' - [our @thecraigoneill @MqEPS writes for @ConversationEDU](#) about a twist in science's favourite whodunnit

RT @MaddiDeGabriele: If you're anti-insect-in-your-house (fair) try being pro-spiders-and-birds [rather than reaching for the chemical sprays](#).

"Having shining examples of where #STEM can take our young women is key to closing the gender gap"—[our Dean @BarbaraMesserle on the power of role models in #WomenInScience](#) @Macquarie_Uni @WomenScienceDay
#InternationalDayofWomeninScience #WomeninSTEMau

[Dark Energy Survey completes six-year mission](#): "Our team of astronomers will still be working to analyse & understand all the data we've collected for years to come," says @AAOMacquarie's @kwkuehn

RT @ABCCatalyst: Honey bees can distinguish between artistic styles. Who knew! We re-created this art experiment with Prof Andrew Barron @MQSciEng on The #GreatAusBeeChallenge Part One. #ABCCatalyst QT @ConversationEDU: We've known for a while that honey bees are smart. [Now they might also add the title of art connoisseur to their box of tricks](#).

"I do think that as climate change continues to bite over the next few decades, sporting bodies are going to have to look at changing the timing of events that are commonly held in summer," says @MQBiology's Lesley Hughes. QT @GuardianAus: [Climate change set to disrupt Australia's summer sports calendar](#)

Faculty bulletin

New staff | Current vacancies | Should Scientists become Political Leaders? | Meet the Lord of the Cane Toads | Aboriginal & Torres Strait Islander Health Care and Traditional Medicine exhibition

Welcome to new Faculty staff

A warm welcome to all the new staff who have joined the Faculty since the start of the year.

Please join me in welcoming **Daniel Burgarth** who joins Physics and Astronomy as a Senior Lecturer in Theoretical Quantum Information Science from Aberystwyth University in Wales.

Simone De Camillis joins Physics and Astronomy as a Postdoctoral Research Fellow in Advanced Optical Imaging from CEA Saclay in France.

The School of Engineering has welcomed four new staff.

Lou Zhao is a Research Fellow in Wireless Communications joining us from UNSW.

Hazer Inaltekin is a Senior Lecturer in Wireless Engineering and was previously at Antalya International University in Turkey.

Anita Ho-Baillie and **Shujuan Huang** both join the school as Associate Professors from UNSW.

Zinoca Issa joins AAO-MQ as the Program Manager - Optical Instrumentation from Uniting Sydney-Australia.

Biology has three new faces.

Maciej Maselko joins the department as a CSIRO Synthetic Biology Future Science Fellow from the University of Minnesota.

Oscar Perez-Priego is a Postdoctoral Research Fellow in Data Analysis and Modelling (Plant Functional Ecology) from the Max Planck Institute for Biogeochemistry in Germany.

Zhiliang Zhang is a Macquarie University Research Fellow from Northwest University in China.

Mathematics and Statistics has welcomed two new Postdoctoral Research Fellows.

Sophia Raynor from Hoppinger in the Netherlands and **Marcin Preisner** from Wrocław University in Poland.

Francesca Short joins the Department of Molecular Sciences as a Postdoctoral Research Fellow. She was previously at the Wellcome Sanger Institute and the University of Cambridge.

Tham Nguyen joins Computing as a Postdoctoral Research Fellow in Privacy Preserving Technologies from UTS.

And **Shan Xue** is another new Computing Postdoctoral Research Fellow, also from UTS.

Current vacancies

We're looking for a [Postdoctoral Fellow in solid-state THz source development and spectroscopy](#) to join the MQ Photonics Research Centre.

Molecular Sciences is looking for an [Associate Professor/Professor in Functional Proteomics](#), and a [Postdoctoral Research Fellow](#) to join a team working on harnessing yeast display for drug discovery.

We're seeking a [Postdoctoral Research Fellow](#) to join a team researching ultra-faint signatures of galaxy growth seen through the cosmic haze.

The School of Engineering is looking for a [Lecturer or Senior Lecturer in Electrical Engineering](#).

Biology is seeking an enthusiastic and proactive [Administration and Outreach Coordinator](#) to join the Centre for Smart Green Cities.

Chiropractic is looking for a [Lecturer or Senior Lecturer](#) with teaching expertise in clinical health science and a strong track record in musculoskeletal research.

And we're looking for expressions of interest from appropriately qualified people to be [sessional teachers](#) within the School of Mathematics and Statistics.

Should Scientists become Political Leaders?

It's a rare occurrence to have a scientist in the parliament, let alone an accomplished one. Leadership in the political arena for scientists has often been regarded almost taboo and yet multiple decisions on policy on issues of the environment, medicine, conservation etc on non-scientific principles, often though in the short term satisfactory to the populous, are in the long term detrimental.

Come and join us on **Thursday 21 March** to hear Dr Mehreen Faruqi, Greens Senator for New South Wales, discuss these issues and how as the scientific fraternity, you can

lead change in politics. You will learn about how scientists can influence policy, pathways to politics and why we need more science in parliament.

[Find out more about this event](#)

Meet the Lord of the Cane Toads

Join us on **Thursday 28 March** to hear Rick Shine talk about his research on Australia's most unpopular animal—the cane toad. Find out about how cane toads are adapting to Australia, and how the Australian wildlife is adapting to this alien amphibian.

As well as documenting the toad's ecological impacts, Rick and his team have discovered ways to control toad numbers, and to help the native fauna coexist with these toxic invaders.

[Find out more about this event](#)

Aboriginal & Torres Strait Islander Health Care and Traditional Medicine exhibition

Come learn more about Aboriginal and Torres Strait Islander culture and health! The exhibition will be running **until Thursday 28 March** in the exhibition space at the entrance to library.

Curated by Christina Gabonian and Stephen Dudley as part of their PACE unit MEDI308, with assistance from Liesa Clague, Aboriginal and Torres Strait Islander health education in Faculty of Medicine and Health Science and Jane Thogersen, the Australian History Museum.

Special highlights: Cassie Leatham traditional medicine, Bronwyn Bancroft original posters, and items from Liesa Clague. Please bring: Your comments.

Connect with us

If you have comments, questions or research news you think might be of interest to the rest of Faculty, I'd love to hear from you. Drop me a line at fse.execdean@mq.edu.au.

Connect with your Faculty online:

- Website: science.mq.edu.au
- Faculty on Twitter: [@MQSciEng](https://twitter.com/MQSciEng)
- Barbara on Twitter: [@BarbaraMesserle](https://twitter.com/BarbaraMesserle)

Got a story?

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