

TEST (To: virginia.tressider@mq.edu.au) | Bugs' burps, eco-engineering and knowing who to trust on Twitter

Faculty of Science and Engineering Executive Dean <fse.execdean@mq.edu.au>

Wed 1/04/2020 3:16 PM

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**MACQUARIE**  
University

**FACULTY OF SCIENCE  
AND ENGINEERING**

April 2020

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# From the Dean

## Dear Virginia

The start of a new academic year is always a busy and challenging period, and this has been particularly the case this year.

Macquarie University has been proactive in developing its response to COVID-19, and in refining it as the situation unfolds. We are evolving our strategies to deal with the latest developments as they occur, and ensuring that our business continuity and contingency plans are fit for purpose.

The University's [coronavirus website](#) is updated on a regular basis with information for staff, students and our community.

### In other news....

We welcomed a new cohort of students for the start of session 1 classes. We have just under 2000 undergraduate and over 600 postgraduate coursework students commencing their studies with the Faculty in 2020.

Around 900 students attended our Faculty Welcome Day on 18 February. The program included separate welcome talks for undergraduates and postgraduate coursework students. I was pleased and honoured to give the official welcome address to both groups.

The Welcome Day also involved program advising and welcome sessions by cohort (degree/major/specialisation). I take this opportunity to thank the many staff involved

in welcoming our new students, and ensuring their first on-campus experiences as Macquarie students were extremely positive.

As we start the new academic year, I also acknowledge the efforts of the many staff who have assisted our students to navigate the new curriculum; and thank all FSE staff for your contribution to the provision of high-quality teaching and research.

## NEWS

### Executive Dean Appointed

Professor **Magnus Nydén** has been appointed as Executive Dean, Faculty of Science and Engineering, commencing mid-2020.

Professor Nydén is an elected member of the Royal Swedish Academy of Engineering Sciences and has a wealth of experience of working at the interface between higher education and industry. He is a physical chemist who started his career in the field of NMR spectroscopy in soft heterogeneous materials. Most recently he served as Chief Technology Officer and Public Policy Director at alternative fuel company Liquid Wind and as Global Chief Scientist at multinational specialty chemicals company Nouryon, based in Sweden.

Prior to that, Professor Nydén held roles working for the University of South Australia, initially as Director of the Ian Wark Research Institute, a Centre of Excellence for research into chemistry and physics linking higher education and industry. In addition, he held a role as Head of Department as part of a joint venture between the University of South Australia and University College London. Before working in Australia, he was a professor at Chalmers University of Technology, Gothenburg, Sweden.

### Faculty General Manager

Amanda Croft, Faculty General Manager of Science and Engineering will be leaving Macquarie University on the 8th April to take up the role of Executive Director, Office of Provost and DVC, University of Sydney.

The Faculty will undertake a competitive recruitment process to appoint a new FGM. Meredith Lowe will be acting FGM in the interim.

### FSE Professional Staff Development Scheme

Applications are now open for the FSE Professional Staff Development Scheme. Please go to the [Faculty of Science and Engineering Professional Staff Development Scheme](#) section of the FSE Intranet for more information and also note

applications for Round 2 2020 close **Friday 24 April 2020**.

## FSE Contract Signing Procedure

The Faculty is drafting a procedure that applies to all contracts and agreements that impact on the operations, resources (staff, space, funds, equipment, facilities), or reputation of the Faculty of Science and Engineering. The procedure is currently under review by the Associate Dean (Research) and MQ Legal Office prior to consultation with Heads of Department and Department Managers.

## ARC Linkage Success

Professor **Kirstie Fryirs**, from the Department of Earth and Environmental Sciences, and her team, including Professor **Michelle Leishman** and Dr **Timothy Ralph**, and Professor Gary Brierley from The University of Auckland, have been awarded \$600,000 in the ARC Linkage Projects scheme. The project is augmented with \$225,000 from their industry partners, Landcare Australia and NSW Local Land Services. The project will examine ways that rivers in coastal NSW are recovering after 200 years of degradation. The project aims to understand the geomorphic and vegetative processes by which river recovery occurs, its impact on flood flows and trial new techniques to determine the best management approaches to maintain and enhance recovery into the future. It will investigate where corridors of recovery are, where to prioritise rehabilitation and the cost:benefit of working with recovery in river management practice. This will help to build further resilience into rivers – to future proof them against floods, droughts and anthropogenic disturbances while achieving positive environmental health outcomes. [More](#)

## ARC Reviews ERA and EI

The ARC recently announced a review of its two national assessments of university research: Excellence in Research for Australia (ERA) and Engagement and Impact (EI). The review will launch in early 2020 with the opening of a consultation phase during which all stakeholders are encouraged to provide their views on the future operation of ERA and EI. The review process will run for around nine months.

The review aims to simplify and streamline the assessments, take advantage of recent developments in technology and big data, and respond to ongoing needs of the university sector, government and the public.

Although the next round of ERA and EI will occur in 2023 and 2024, respectively, the ARC has advised universities to continue collecting data in line with the 2018 round requirements while the review is underway.

The Post Award and Reporting Team in Research Services will coordinate Macquarie's response to this review and will provide more information as it becomes

available. If you would like to provide initial feedback, or have any questions, please email [research.assessments@mq.edu.au](mailto:research.assessments@mq.edu.au).

## FSE Publications

FSE researchers totalled more than 80 publications in February, with Geology and Computer Science featuring strongly. **Rachael Gallagher** from Biological Sciences was also notable, as part of a group of researchers calling for an ambitious project to employ open science principles to categorise the Tree of Life by traits. A full list is [available on request](#).

## MAKING NEWS

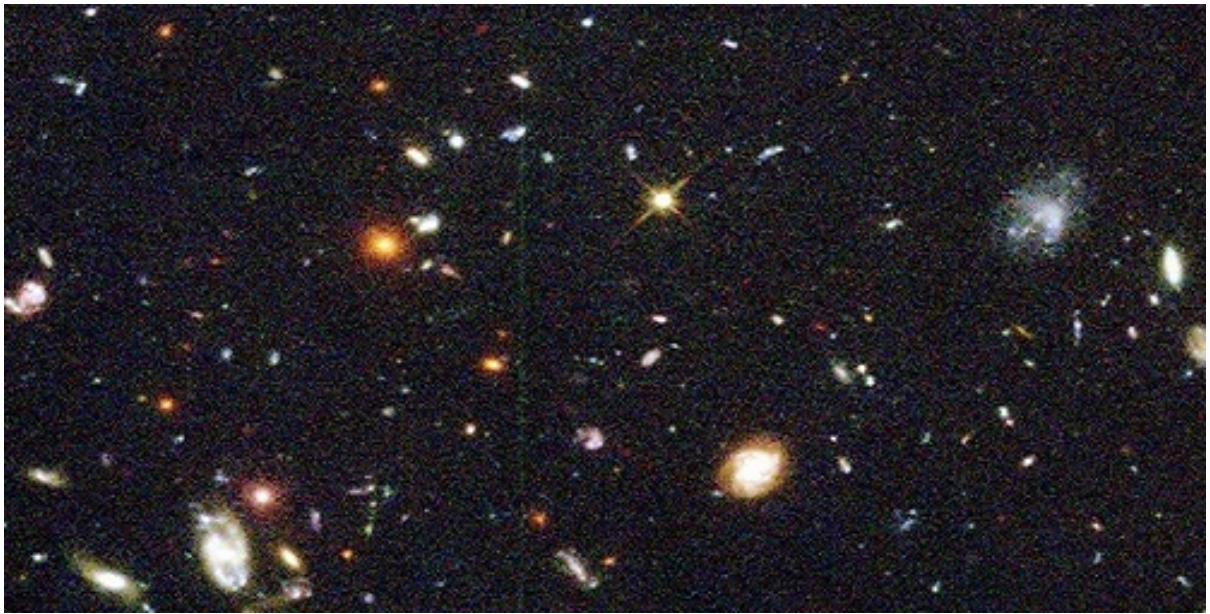
FSE researchers were again prominent in the media, with Professor **Lesley Hughes**, Associate Professor **Culum Brown**, Associate Professor Adam Stow and Associate Professor **Andrew Barron** February's most consistent contributors in both print and broadcast media.

Group Marketing have entered into an agreement with *New Scientist* that will see selected science stories from *The Lighthouse* included in a regular email sent to *New Scientist* subscribers worldwide. Obviously, such coverage is welcome, so please consider if your research is suitable for a story in *The Lighthouse*, and possibly *New Scientist*.

The first of these has already gone out, with **Christian Schwab** from Physics and Astronomy gaining attention for his work on a spectrograph recently installed at the Kitt Peak Observatory. Below is a sample of what New Scientist subscribers received in their inboxes.

Extract from *New Scientist*:

A new extreme-precision instrument is set to discover the movement and composition of stars beyond our solar system and the Earth-sized planets that may surround them.



Images such as this, captured by the Hubble telescope, will reveal more heavenly data with Schwab's precision instrument and will enable astronomers to search for planets around these stars.

Dr Christian Schwab, an astrophysicist in Macquarie's Department of Physics and Astronomy is lead optical designer of the new instrument intended to measure the movement of astronomically 'nearby' stars around three times more accurately than the previous generation of high-tech astronomical instruments.

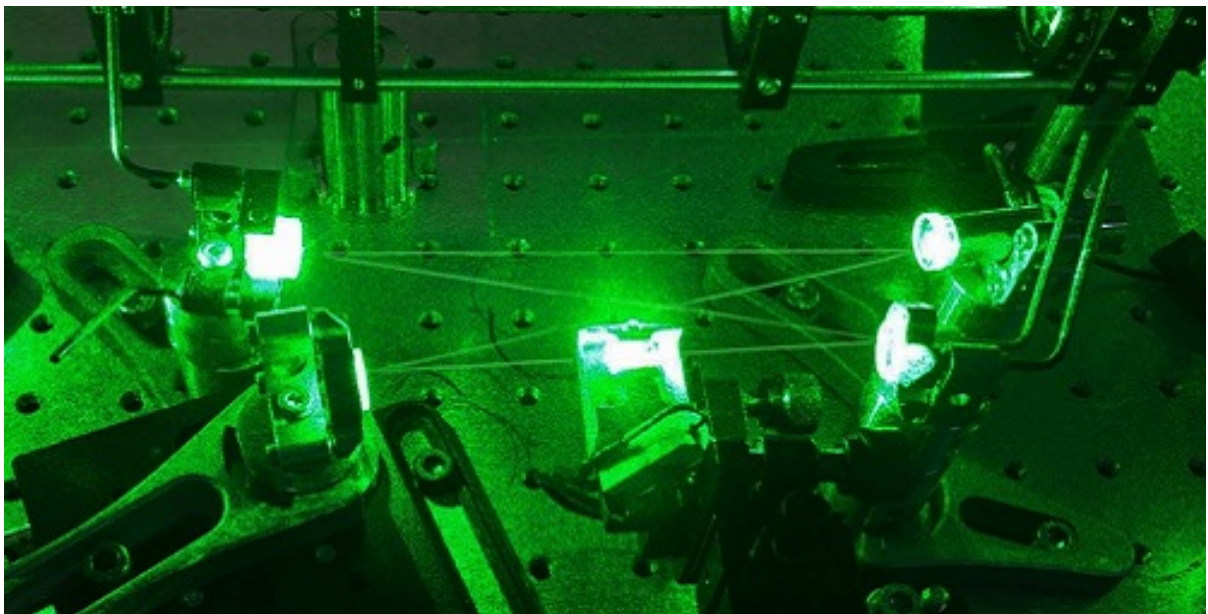
The device detects light no human eye could ever see and is built to detect exoplanets – planets outside our solar system. Not only is it expected to be able to detect planets about the size of Earth, but also gather enough information to work out their mass and establish if they're rocky planets like Earth, gas planets like Jupiter, or [another type](#).

Schwab's new instrument, an extreme precision radial velocity spectrometer, is collecting starlight on the 3.5-meter WIYN telescope at [Kitt Peak National Observatory](#) in Arizona.





*Final frontier: Astronomers make adjustments to the spectrograph at the Kitt Peak National Observatory in Arizona, USA.*



## A sound boost to extreme laser performance

Published in Applied Physics Letters Photonics, Dr **Zhenxu Bai**, Dr **Robert Williams**, Dr **Ondrej Kitzler**, **Soumya Sarang**, Professors **David Spence** and **Rich Mildren** from the Department of Physics and Astronomy, have shown that the light-sound interaction is particularly strong in diamond, and have demonstrated the first bench-top Brillouin laser that uses diamond.

Diamond provides a new way to begin to exploit the unique properties of Brillouin lasers. Only a very small amount of waste energy is deposited in the sound-carrying material. This leads to a host of features including beam generation with ultra-pure

and stable output frequency, the generation of new frequencies, and potentially, lasers with exceptionally high efficiency. [Read more](#)



## A cooler home is right in your own back yard

A means of mitigating the effects of climate change is the use of green infrastructure, forests and nature-based solutions. These are cheap, sustainable, and effective means of reducing the impact of warming cities. [In a report](#) by Dr **Alessandro Ossola**, **Leigh Staas** and Professor **Michelle Leishman** from the [Centre for Smart Green Cities](#), together with the [AdaptWest Consortium](#), it was found domestic yards account for more than 40% of tree cover and 30% of herbaceous cover, in the form of grass. This is a considerably higher tree canopy cover than typical parks, which tend to have more grass. The density of greenery in household yards was found to keep land surface temperatures up to 5-6°C below similar non-vegetated areas. Importantly, removing existing vegetation, through urbanisation, infill and densification could significantly increase local land surface temperatures, particularly during the day. [Read more](#)

## FUNDING OPPORTUNITIES, PRIZES & AWARDS

### ARC Funding Schemes

Scheme	Opening Date	MQ Submission Date
<a href="#">Linkage Projects - 2020 round 2</a>	Continuous	8 July 2020

[Linkage Projects -  
2020 round 3](#)

Continuous

3 Nov 2020

## Internal MQ Funding Schemes

[MQ Fellowship for Indigenous Researchers Scheme](#) - continuously open

[MQ Enterprise Partnership Scheme](#) - continuously open

## Research Prizes and Awards

Discover upcoming research prize and award opportunities, and view recent success stories from MQ researchers. [Learn more](#)

## Research Professional Database

We encourage you to use the Research Professional database to search for Australian and international research funding and research award opportunities.

[Login and search](#)

Research Professional runs a series of live online broadcast training sessions for the Australian time zone. [View and register](#).

## 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](mailto:fse.execdean@mq.edu.au).

Connect with your Faculty online:

Website: [science.mq.edu.au](http://science.mq.edu.au)

Faculty on Twitter: [@MQSciEng](#)

Barbara on Twitter: [@mans\\_bernard](#)

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