



**MACQUARIE**  
University

**FACULTY OF SCIENCE  
AND ENGINEERING**

20 December 2019

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## From the Dean

NEWSLETTER

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It is almost the end of the calendar year, yet the research output from the Faculty continues undiminished.

Several papers have been published this month, covering subjects such as testing for heavy metals in Australian gardens, how zebra finches survive in the heat, and why citizen scientists deserve better recognition.

In addition, five Macquarie academics were recently accepted into the ARC College of Experts, including three from the Faculty. And several of our researchers have been successful in securing Australian Research Council Discovery Project funding – check out the list below.

With so much happening, I encourage you follow the Faculty on Twitter at [@MQSciEng](#). I'm also on the platform, at [@mans\\_bernard](#).

This will be my last newsletter for 2019 so I'd like to take this opportunity to thank you for all your hard work over the past year, and to wish you and your loved ones a happy and relaxing break over the holiday period.

Regards,

Prof Bernard Mans  
Interim Executive Dean

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## Citizen scientists deserve more credit, researchers argue



In a paper published in the journal *Trends in Ecology and Evolution*, a team led by Macquarie University biologist Dr Georgia Ward-Fear and Dr Greg Pauly from the Natural History Museum of Los Angeles argues that newfound respect for indigenous knowledge and changes in technology mean that non-professionals are taking greater roles in science work.

[Read more here.](#)

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## Five Macquarie University academics accepted into the ARC college of experts



Five researchers from Macquarie University have been accepted into the Australian Research Council (ARC) College of Experts, including Faculty members David Coutts, Paul Haynes, and Annabelle McIver.

[Read more here.](#)

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## Digging up the dirt: are your home-grown veggies safe to eat?



The level of heavy-metal contamination in Australian gardens is being exposed by a Macquarie University program led by Mark Taylor, director of the Faculty's Energy and Environmental Contaminants Research Centre. The program is testing thousands of soil samples sent in by concerned citizens.

[Read more here.](#)

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## Zebra finches survive Australian heatwaves by predicting high temperatures



The survival habits of a native Australian bird have given researchers from Curtin University, University of Western Australia, and Macquarie University vital clues that may help understand how wildlife can withstand harsh heatwaves that may prove fatal.

[Read more here.](#)

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## **Congratulations corner**

Several Faculty researchers were successful in their applications for ARC Discovery Project grants, which were announced by the Federal Education Minister Dan Tehan. Congratulations to:

### **Department of Earth and Planetary Sciences**

- Professor Martin Kennedy, who will examine environmental records from ocean warming events in the geologic past.
- Associate Professor Nathan Daczko, who will uncover new knowledge about volcanic arcs, which are crucial to understanding geochemical cycles, tectonic-climate coupling, ore genesis and natural hazards.

### **Department of Molecular Sciences**

- Dr Thomas Williams, who will seek to better understand genome complexity by engineering yeast genomes that have fewer genes.
- Dr Yuling Wang, who will develop a platform technology for multiplexed glycan mapping of the surface of a single cell to address challenges of functional glycomics by utilising a conceptually new approach.
- Distinguished Professor Ian Paulsen, who will undertake systematic functional characterisation of marine cyanobacteria systems and determine their physiological and ecological importance in the marine food web.

### **Department of Biological Sciences**

- Professor Simon Griffith, who will characterise how contamination from the extraction of precious metals can spread through the environment and how it affects a highly urbanised bird – the house sparrow.
- Professor Ken Cheng, who will investigate how desert ants use their surroundings to navigate.
- Distinguished Professor Michael Gillings, who will examine the origins of gene cassettes that play a role in spreading antibiotic resistance among pathogens.

### **Department of Mathematics and Statistics**

- Associate Professor Adam Sikora, who will study linear and nonlinear harmonic analysis, to improve tools for mathematical modelling in all areas of technology and science.

### **School of Engineering**

- Professor Stephen Hanly, who will optimise information gathering and communication capacities of airborne base stations to enable low latency communications in rural and remote areas.

- Dr Ming Li, who will examine antibiotic resistance in bacterial populations at the single-cell level, using an innovative approach integrating microfluidics, microscopy and genomics.

### Department of Computing

- Professor Deborah Richards, who will investigate ways to train reflective ethical decision-making in cybersecurity management through the design of interactive social simulations.
- Professor Michael Sheng, who will develop innovative techniques to distil truthful information in inherently unreliable and large-scale web environments.

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## 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](https://twitter.com/MQSciEng)
- Bernard on Twitter: [@mans\\_bernard](https://twitter.com/mans_bernard)

**Got a story?**

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