



MEDIA RELEASE

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Australian University Science Teams Up on Hydrogen

The first hydrogen fuel exports to Japan plus new technologies to deliver on the hydrogen economy are being touted in a publication released today: ***Australian University Science***, to showcase Australia's deep research expertise in this multi-billion dollar economy.

The bi-annual publication is published by STEM specialist content company Refraction Media on behalf of the Australian Council of Deans of Science (ACDS).

"University science is a fundamental source of disruptive ideas, and a partner for their translation into innovation," says Executive Director of the ACDS, Professor John Rice. "The emerging hydrogen economy and energy futures are a great example."

Australia's past Chief Scientist, Professor Ian Chubb, says the publication highlights the collaborative nature of university research. "Through a multitude of collaborations — including with other research institutions and government, in Co-operative Research Centre partnerships, with the CSIRO, or directly with companies large and small — university science now engages at every stage of the cycle in which knowledge is turned into new and better ways of doing things," says Professor Chubb.

"University scientists and students do more than explore, uncover and discover. They also use their knowledge to work closely with the people who produce the new technologies and practices that a changing world needs."

Some of the research highlighted in the publication includes:

Professor Chuan Zhao and UNSW chemists invented a new nano-framework of non-precious metals, making it cheaper to create hydrogen fuel by splitting water atoms.

Australian National University chemistry professors Ron Pace and Rob Stranger have uncovered a process used by all photosynthetic organisms to use the sun's energy to

convert water into hydrogen and oxygen. This natural electrolysis is the most efficient method known and relies on a 'chemical spark plug' called the water oxidising complex.

Genetically engineered bacteria that turn sugar into hydrogen has been developed by a team of molecular chemists at Macquarie University who are looking to scale the technology.

Under Dr Guohua Jia, molecular scientists at Curtin University have invented tiny crystals that don't contain toxic metals but can be used as catalysts to convert solar energy into hydrogen.

Electromaterials scientists at Monash University, led by Dr Alexandr Simonov, have found a solution to metal corrosion caused by water splitting to create hydrogen.

QUT Redlands Facility has delivered the first shipment of green hydrogen to Japan, in March 2019 as part of a collaboration between QUT and the University of Tokyo, which uses proprietary technology owned by JXTG, Japan's largest petroleum conglomerate.

Australian University Science is free to order and download. Access or order copies at acds.edu.au/AustUniScience

Interviews: Professor John Rice, Executive Director, ACDS, (Adelaide)

0438 438 097

john.rice@adelaide.edu.au

Heather Catchpole, Editor, *Australian University Science* (Sydney)

04010568975

heather@refractionmedia.com.au