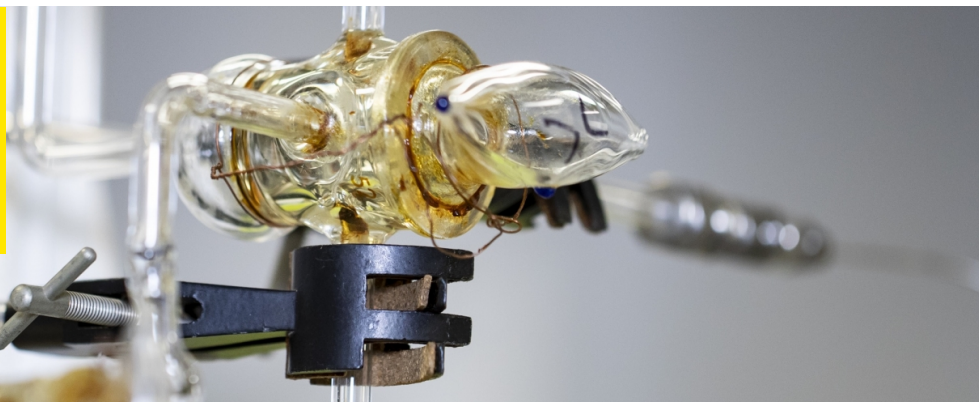




**UNSW**  
SYDNEY



## Direct Electrocatalytic CO<sub>2</sub> Reduction

**Expertise in the direct conversion of carbon dioxide into high value liquid products, which is important for combating climate changes and energy efficiency challenges**

### Competitive advantage

- The electrochemical CO<sub>2</sub> reduction reaction (CO<sub>2</sub>RR) can be carried out at ambient conditions by applying an external bias
- Possibility to couple with electricity generated from renewable energy resources to close the carbon loop
- Simple, scalable and cost-effective catalysts for CO<sub>2</sub>RR in the gas phase to deliver liquid products

### Impact

- Alleviate global warming by direct conversion of CO<sub>2</sub> into high value liquid products
- Creation of a sustainable cycle of carbon-based fuel that will promote zero net CO<sub>2</sub> emissions

### Successful applications

- Mesoporous tin oxide (SnO<sub>2</sub>) electrocatalyst for large scale conversion of CO<sub>2</sub> to formate with high selectivity and current density

### Capabilities and facilities

- Access to expertise and state-of-the-art facilities for electrocatalyst fabrication, characterisation and testing of performance
- Expertise in the direct conversion of carbon dioxide into high value liquid products, which is important for combating climate changes and energy efficiency challenges.

### More Information

Scientia Professor Rose Amal

School of Chemical Engineering

T: +61 (02) 9385 436

E: [r.amal@unsw.edu.au](mailto:r.amal@unsw.edu.au)

Dr Xunyu Lu

School of Chemical Engineering

T: +61 (0) 2 9385 4645

E: [xunyu.lu@unsw.edu.au](mailto:xunyu.lu@unsw.edu.au)

UNSW Knowledge Exchange

[knowledge.exchange@unsw.edu.au](mailto:knowledge.exchange@unsw.edu.au)

[www.capabilities.unsw.edu.au](http://www.capabilities.unsw.edu.au)

+61(2) 9385 5008