



CAMBRIDGE CARES CAMBRIDGE CENTRE
FOR ADVANCED RESEARCH AND
EDUCATION IN SINGAPORE LTD.

CARES Visiting Scientist Seminar Series:

Lowering Carbon Emissions: Producing Renewable Energy from Water Splitting and Carbon Dioxide Reduction

Dr Hangjuan Ren; Postdoctoral Research Associate,
University of Oxford

Thursday 20 July 2023, CREATE Pinnacle Room L16



Cambridge Centre for
Carbon Reduction in
Chemical Technology

Abstract: In the face of growing environmental concerns, the need for sustainable and eco-friendly energy solutions has never been more pressing. The seminar delves into the realm of green energy and explores different strategies aimed at lowering carbon emissions. It specifically focuses on promising techniques of photoelectrochemical and electrochemical water splitting for sustainable hydrogen fuel production, as well as the electrochemical reduction process for converting CO₂ into valuable fuels and chemicals. Furthermore, the seminar will explore the important role of operando/in-situ characterisation methods in revealing electrochemical/photoelectrochemical reaction mechanisms. Through the construction and development of these techniques, researchers will gain insights into the real-time monitoring of catalytic reaction processes under working conditions. Interdisciplinary analytical methods corresponding to characterisation methods have also been developed, offering great promise for their application in different fields.

Biography: Dr. Hangjuan Ren is a postdoctoral research associate in the Chemistry Department at the University of Oxford. Prior to this appointment, she served as a Research Fellow at the Cambridge CARES, where she worked on a joint project with the University of California, Berkeley. Dr. Ren's primary research interests focus on advancing green energy and achieving carbon neutrality. She specialises in electrochemical/photoelectrochemical water splitting, electrochemical CO₂ reduction, and development of operando/in-situ characterisation techniques. Through her research, Dr. Ren strives to develop innovative solutions that contribute to a sustainable and environmentally friendly future. Related work has been published in Nature Catalysis, Advanced Materials, etc.



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