

Speaker: [Professor Hongxia Wang](#)
School of Chemistry, Physics and
Mechanical Engineering
Queensland University of Technology



Date: Wednesday 27 November 2019

Time: 11.00 am

Venue: Room 1.08 N74 (QMF building) Nathan Campus

Title: **Perovskite Solar Cells - Challenges and Opportunities**

Abstract:

The past ten years have witnessed the skyrocketing progress of perovskite solar cells (PSCs) using organic-inorganic lead halides as light absorber with current energy conversion efficiency over 25% achieved with cost-effective fabrication methods. Although the power conversion efficiency of PSCs is comparable and competitive to other commercially available solar cells such as monocrystalline silicon solar cells, critical issues such as unsatisfactory stability and current-voltage hysteresis associated with perovskite solar cells (PSCs) are obstacles that restrict the commercialisation of PSC technology. The root for the poor stability and hysteresis of PSCs is believed to be related with the unique properties of the perovskite material, which could be solved through material engineering and through optimized device architecture. In my talk, I will present the recent studies addressing issues with PSCs with focus on material engineering such as material doping and use of water-resistant hole transport materials. Dopants such as small molecule¹ or alkaline cations² incorporated to the perovskite film have shown dramatic effect on tuning the device hysteresis. Strategies which could overcome the stability and hysteresis issue of PSCs devices will be discussed.

Short Biography:

Hongxia Wang is a full professor in School of Chemistry, Physics and Mechanical Engineering at Queensland University of Technology (QUT). She has PhD degree in Condensed Matter Physics, Master degree and Bachelor degree in Chemistry. She is currently leading a research group at Queensland University of Technology (QUT) dedicating to development of new routes to enhance performance and stability of next generation solar cells, in particular dye-sensitized solar cells, perovskite solar cells and energy storage devices such as supercapacitors through innovative material engineering and device engineering. She has published over 150 peer-reviewed scientific journal papers and some of her papers are in the list of ESI highly Cited papers. She was awarded "Solar Energy Journal Best Paper Award for 2016 in the topic of Photovoltaics" by International Solar Energy Society. She was the recipient of two prestigious Australian fellowships including Australian ARC Future Fellowship and Australian Postdoctoral Fellowship (Industry, APDI).

For enquiries, please contact Assoc Prof Qin Li: qin.li@griffith.edu.au

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