

**Speaker: Dr Jingsan Xu**

Senior Research Fellow (DECRA)  
Science and Engineering Faculty,  
Chemistry, Physics, Mechanical Engineering,  
[Nanotechnology and Molecular Science](#)  
QUT

**Date:** Wednesday 11 October 2017

**Time:** 11.00 am

**Venue:** Room 1.08 QMF building (N74), Griffith University, Nathan Campus

---

**Title: Thin Films, Colloids and Interfacial Behaviour of Graphitic Carbon Nitride**

**Abstract:**

Graphitic carbon nitride ( $g\text{-C}_3\text{N}_4$ ) is a metal-free semiconductor and has attracted tremendous attention in the past few years for solar-to-fuel conversions, such as photocatalytic water splitting,  $\text{CO}_2$  reduction and organic transformation. In this talk, I will present a brief overview of our recent progress in the design and synthesis of  $g\text{-C}_3\text{N}_4$  materials from molecular level and demonstrate the multiple applications of  $g\text{-C}_3\text{N}_4$ . In more details, we have been focusing on a few aspects: (1) developing a liquid-mediated approach to grow  $g\text{-C}_3\text{N}_4$  thin film as the active layers for solar cell and light-emitting diode; (2) preparation of  $g\text{-C}_3\text{N}_4$  quantum dots that have distinct photoluminescent properties, i.e. high quantum yield and large Stokes shift; (3) the performance of  $g\text{-C}_3\text{N}_4$  as an amphiphile, which can stabilize emulsions and disperse hydrophobic substances in water. We believe that there is still plenty of room to explore new chemical properties and functions of  $g\text{-C}_3\text{N}_4$  based materials.

**Brief Bio:**

Jingsan Xu obtained his BS from Jilin University (2008) and PhD from Shanghai Institute of Ceramics, Chinese Academy of Sciences (2013). He spent one year at University of California, Berkley as a visiting student in the group of Prof. Ali Javey for semiconductors growth and solar cells fabrication. Then he moved to Germany as a postdoctoral researcher working under the supervision of Prof Markus Antonietti at Max Planck Institute of Colloids and Interfaces, where his research focused on the growth of graphitic carbon nitride thin films and fabrication of optoelectronic devices. Dr Xu commenced at Queensland University of Technology as a Senior Lecturer and Fellow of the Discovery Early Career Researcher Award (DECRA) in March 2016. His current research interest focuses on materials chemistry and interface, photocatalysis and energy conversion as well as fluorescent materials.

**References:**

1. *Journal of American Chemical Society*, 2014, **136**, 13486.
2. *Advanced Optical Materials*, 2015, **3**, 913.
3. *Angewandte Chemie International Edition*, 2016, **55**, 3672.
4. *Journal of the American Chemical Society*, 2017, **139**, 6026
5. *Chemistry – An Asian Journal*, 2016, **11**, 2499.

**ALL WELCOME**

---