MONASH University

Monash Centre for Electron Microscopy

# Monash Centre for Electron Microscopy Seminar

## Understanding nanostructure development using electron microscopy and x-ray techniques

**Monday 10 April, 2017**

**11.00AM**

**SCIENCE THEATRE S9**
**16 RAINFOREST WALK**
**MONASH UNIVERSITY**
**CLAYTON CAMPUS**


**Presenter**
**Associate Professor Lam Yeng Ming**
School of Materials Science and Engineering, College of Engineering, Nanyang Technological University, Singapore



### Abstract

Nanostructures are made use of for a range of applications because of their unique optical and electrical properties. These nanostructures can be purely organic or inorganic or even hybrid in nature. As structures become more complex due to the requirement for a combination of different properties in one single structure, it becomes more critical to be able to study the structural and chemical composition carefully. Such investigations will provide some insight to the mechanistic development of the structures and why these structures can lead to the desired properties. In this talk, I will cover a few examples on how microscopy and x-ray techniques can be used in combination to acquire important information in these systems.


### About the presenter

Dr Lam Yeng Ming received her BASc (Hons) in Materials Engineering, Nanyang Technological University, Singapore. After working at Texas Instruments as a development engineer, she then went on to read her Ph.D. in Materials Science and Metallurgy, University of Cambridge, and graduated in 2001. Yeng Ming's research interests are in the understanding and the application of self-organization of peptides and polymers. She has studied a wide range of self-assembled systems in selective solvents and thin films. Her research also includes the application of self-assembly on the synthesis of nanostructures/nanoparticles, nanotemplating, organic memory, photovoltaics, etc.

Yeng Ming has also demonstrated through the use of both experiments and calculations, that it is possible to accurately parameterize copolymer systems. The mesoscale morphology of the copolymer system can be predicted accurately through simulation making use of the dynamic mean field density method. This allows for a simple approach in the design of copolymer for self-assembly and to understand the conditions for self-assembly. This work resulted in the publication of numerous papers and 2 book chapters. She has also obtained research funding for self-assembly work in other applications such as surface modifications and development of nanoreactors for controlled synthesis of nanomaterials. Her most recent funding obtained through the Competitive Research Programme funding from National Research Foundation as a Project PI under a S$10 million programme on Nanonets: New Materials, Devices for Integrated Energy Harvesting


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