NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

School of Materials Science and Engineering

Seminar Topic:
Structures, Processing and Properties of Self-Assembling Polymer-Directed Hybrid Materials

Assistant Professor Tan Kwan Wee

Abstract

Self-assembly is well-represented in nature by a plethora of sophisticated material designs, functions and architectures, ranging from amorphous biosilica diatoms to the single-crystal calcite spines of sea urchins. In this talk, I will discuss our recent synthetic efforts in applying the concept of self-assembly with block copolymers to generate well-organized structures of amorphous polymers, polycrystalline ceramics and single-crystal semiconductors for potential application in membrane separation and energy conversion. Special emphasis will be placed on *in situ* and *ex situ* characterization studies for rapid self-assembly of hierarchically porous structures under non-equilibrium conditions. Establishing new understanding and control in the formation pathways of such self-assembled materials will be of scientific and technological relevance for the design of advanced applications with enhanced functionalities and performance.

Biography

Dr Tan Kwan Wee is an Assistant Professor in the School of Materials Science and Engineering at Nanyang Technological University, Singapore. He earned his Ph.D. from Cornell University in 2014, supported by a Singapore National Research Foundation Ph.D. Scholarship. He obtained his Master's and Bachelor's degrees from National University of Singapore (2009), Massachusetts Institute of Technology (2008) and Nanyang Technological University, Singapore (2006), respectively. Prior to joining NTU, he was a SMART Postdoctoral Scholar at the Singapore-MIT Alliance for Research and Technology (SMART), research associate at Cornell University (2014–2015) and a visiting student at the University of Oxford (2011). His current research interests include exploring alternative integrated approaches using self-assembly as the basis to enable scalable synthesis of new multifunctional material structures and combinations for emerging applications.

Wednesday, 31 January 2018 || Time: 2:00 pm – 3:00 pm
Venue: MSE Meeting Room (N4.1-01-28)
Hosted by: Adjunct Assistant Professor Karthik Kumar

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