NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

School of Materials Science and Engineering

Seminar Topic:
Plasmonic Metal-Semiconductor Nanostructures for Photocatalysis

Associate Professor Xue Can

Abstract

Photocatalytic activities associated with the surface plasmon excitation of metal nanoparticles allow for utilising visible and near-IR light to drive or enhance chemical reactions. In particular, when heterojunctions are created between metal nanoparticles and semiconductor photocatalysts, the visible-light-driven photocatalytic activities of the semiconductors can be strongly enhanced through electron transfer and/or energy transfer induced by the surface plasmon excitation. Our group has developed various nanostructures comprising Au/Ag nanoparticles and different semiconductor photocatalysts. In this talk, I will elaborate how we explore the plasmon-enhanced activities for different photocatalytic reactions through rational design and controllable synthesis of these metal-semiconductor hybrid nanostructures. The revealed enhancement principles provide further guidance on the future development of plasmonic nanostructures towards highly efficient conversion of solar energy into hydrogen and other valuable chemical fuels.

Biography

Dr Xue Can is an Associate Professor in the School of Materials Science and Engineering at Nanyang Technological University, Singapore. He obtained his Bachelor's degree from the University of Science and Technology of China in 2002 and his PhD degree from Northwestern University in 2007. Thereafter, he moved to NTU in 2008 as a recipient of the prestigious Lee Kuan Yew Research Fellowship and was subsequently appointed as an Assistant Professor in November 2009. He was promoted to Associate Professor with tenure in 2015. His research is focused on developing metal and semiconductor nanostructures for photocatalytic applications, including water splitting, CO_2 reduction and light-driven organic reactions.

Wednesday, 14 November 2018 ǁ Time: 2:00 pm – 3:00 pm
Venue: MSE Meeting Room (N4.1-01-28)
Hosted by: Professor Alex Yan Qingyu

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