



Singapore-MIT Alliance for Research and Technology



## **Focused Seminar Series on Computational Techniques**

**15 Feb — 4 Apr 2016, Level 5 Seminar Room, Enterprise Wing @ UTown, S'138602**

# **Seminar 4: Molecular Design of Spectroscopic Properties of Organic Fluorophores**

**Dr. Liu Xiaogang**

Singapore-MIT Alliance for Research and Technology Centre

**Date:** 7 Mar 2016, Monday

**Time:** 4pm to 5pm

**Venue:** Perseverance Room, Enterprise Wing Level 5 @ UTown



## **Abstract**

Organic fluorophores (dyes) have been used extensively as bio-molecular labels, chemical sensors and cellular stains for chemical biology research and medical diagnosis. Recently, along with the development of advanced fluorescence imaging techniques and applications (such as single-molecule and super-resolution fluorescence microscopy, and fluorescence guided surgery), there is an increasing demand for fluorophores with outstanding brightness and photostability, and near-infrared emissions. In this talk, I will discuss the basic “philosophy” behind using computational techniques and how quantum chemical calculations helps chemists to develop high-performance dyes. We will discuss the vision towards establishing a concrete molecular engineering of organic fluorophore, via combined computational studies and experimental validations.

## **Biography**

Dr. Liu Xiaogang is currently a SMART Scholar in BioSystems and Micromechanics Inter-Disciplinary Research Group of Singapore-MIT Alliance for Research and Technology (SMART). Xiaogang obtained his PhD. degree from the University of Cambridge in 2014. His research focuses on the development of high-performance organic fluorophores and fluorescent sensors, employing both quantum chemical calculations and experimental validations.