

## CBC SEMINAR ANNOUNCEMENT



**Dr Dan Daniel**

**Institute of Materials Research and Engineering, Singapore**

### **Bioinspired Ultra-repellent Surfaces and How to Characterize Them**

In nature, the need to repel liquid contaminants can be a matter of life and death. For example, insects must avoid getting trapped by falling raindrops and plants need to keep their leaves dry for efficient gas exchange through the stomata. It is not surprising therefore that many state-of-the-art liquid-repellent surfaces have been inspired by examples in nature. In this talk, I will discuss two classes of ultra-repellent surfaces inspired by the lotus leaf and the cartilage surface, as well as new ultra-sensitive techniques we developed to characterize their wetting properties. Using a custom-built setup and a modified AFM technique, we are able to map micron-scale wetting variations on surfaces and measure the forces experienced by a moving droplet down to the pN level. The ultra-sensitive nature of our technique will ultimately allow us to probe the intermolecular forces that ultimately give rise to the wetting properties observed – an important information that will help us design better surfaces at the molecular level.

**Date:** 12<sup>th</sup> September 2019 (Thursday)  
**Time:** 2.00pm to 3.30pm  
**Venue:** SPMS Graduate and Research  
Conference Room  
**Host:** Associate Professor Ling Xing Yi