

Bio-inspired Coalescence Enhancement for Atmospheric Water Harvesting**Speaker:** Barbara Ang Ting Wei

Department of Materials Science and Engineering, Engineering, NUS, Singapore

Date: 3rd Oct 2019, Thursday
Time: 3:30 to 4:00 pm
Venue: EA-06-03

Abstract

Increasing concern about water security has sparked research interest in atmospheric water harvesting from humid air in recent years. For a typical atmospheric water harvester, the water harvesting occurs in three main steps: accumulation, transportation and collection. Many researchers have focused on bioinspired structures with enhanced directional fluid transport, however, there is a significant lack of designs for enhancing droplet coalescence. It is known that long mean times between coalescence events results in the re-evaporation of micro droplets, crippling the water harvesting efficiency. An atmospheric water harvester inspired by the synergistic combination of cacti spines and Tillandsia trichomes has been designed and fabricated to encourage rapid coalescence. The simple fabrication method allows the water harvester to be scaled up into a large array. The drip-off volume measured in a fog chamber was found to be 220% that of a flat surface within 15 minutes, demonstrating that improving coalescence efficiency is important for the development of atmospheric water harvesting devices.

Barbara received her bachelor's degree in Department of Materials and Engineering from National University of Singapore. She is now a PhD candidate in Department of MSE under A/P Xue Junmin. Her current research mainly focuses on surface architecture engineering and thermo-responsive hydrogels for spontaneous atmospheric water harvesting.

ALL ARE WELCOME!

Host: A/P Xue Junmin