



**Seminar Topic:
Bioinspired Materials and Interfaces**

Nanyang Assistant Professor Yu Jing

Abstract

In this seminar I will briefly go over the research activity of my group on bioinspired materials and interfaces. The first example I will give is our previous and current research on mussel-inspired wet adhesives. The rapid and robust adhesion of marine mussels to diverse solid surfaces in wet environments is mediated by the secreted mussel adhesive proteins which are abundant in a catecholic amino acid, L-3,4-dihydroxyphenylalanine (Dopa). Over the last two decades, enormous efforts have been devoted to the development of synthetic mussel-inspired adhesives with water-resistant adhesion and cohesion properties by modifying polymer systems with Dopa and its analogues. Using the surface forces apparatus (SFA), we systematically explored the adhesion mechanism of various mussel foot proteins. Our SFA results show that mussels achieve strong interfacial binding via balancing a variety of covalent and noncovalent. The insights obtained from the understanding of the interaction mechanisms between individual Mfp and disparate substrates provide critical guidance for the design of next-generation wet adhesive materials. I will then briefly discuss about our recent findings on surface functional polyelectrolyte brushes.

Biography

Dr Yu Jing is an Assistant Professor in the School of Materials Science and Engineering (MSE) at Nanyang Technological University (NTU), Singapore. He obtained his Bachelor's degree from Tsinghua University in 2007, and PhD from the University of California, Santa Barbara in 2012, both in Chemical Engineering. In 2014, he expanded his research interests towards polyelectrolyte brushes during his postdoc at the University of Chicago. He then joined NTU in 2017.

His research interest is mainly bio-inspired materials as well as intermolecular interactions and self assembly behaviors of complex biomacromolecules.

Wednesday, 5 August 2020 || Time: 2:00 pm – 3:00 pm ||

Live Streaming Link (Blackboard Collaborate):

<https://au.bbcollab.com/quest/6591fab343294eb393469b626b0818ee>

Hosted by: Asst Prof Dalton Tay