

# Seminar

## Amphiphilic Copolymers in Water: Stickiness, Elasticity, and Sequence

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**Date: Wednesday, 15 November 2023, 16:00–17:00**

**Venue: Faculty of Eng. Bldg. #4, 1F, Room 205**

### **Abstract:**

Amphiphilic surfactant molecules self-assemble into micelles in aqueous solutions driven by hydrophobic interaction. At higher concentrations, the packing of the micelles results in a variety of lyotropic mesophases useful for numerous applications, from templated synthesis of nanostructured materials to drug delivery. In this talk, I will discuss two recent examples of amphiphilic copolymer systems studied by our group. Firstly, I will present a new adhesive formulation consisting of an amphiphilic, biodegradable, biocompatible block copolymer with tannic acid. Preliminary results for noninvasive, sustainable, follicle-free hair transplantation will be demonstrated. Secondly, I will show that a periodic order can spontaneously arise from the self-assembly of random copolymers based on their collective behavior in the form of a bilayer-folded lamellar mesophase. The effect of the sequence in the packing and macroscopic properties and applications of the random copolymer will be discussed.

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