

Seminar

Adhesive Polymers and Coatings Inspired by Mussels and Plant Polyphenols

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Venue: Faculty of Engineering Bldg. 4, 1F, Room 205

Abstract: Phenols and polyphenols are molecules present in numerous natural systems where they perform a variety of biological functions, including wet bioadhesion, pigmentation, infection prevention, metal-binding and antioxidant properties. Their broad distribution in both the animal and plant kingdoms suggest that polyphenols have a wide range of chemical, physical and biological properties. Based upon this, there is a growing recognition that polyphenols are useful building blocks for advanced functional materials. In this talk, I will focus on a few selected examples of biological systems, such as the polyphenolic mussel adhesive proteins and polyphenols found in tea leaves, grapes, cacao beans and other plant tissues that have high concentrations of phenols or polyphenols. The emphasis will be on describing the chemical and mechanical basis for their role in nature, and how we can exploit these molecules as building blocks for synthetic bioinspired adhesives, hydrogels and coatings.

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