



Department of
Biomedical Engineering

香港城市大學
City University of Hong Kong

Hosted by Prof. Chenjie XU

Magic at Interfaces

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Date: 4 September 2024

Time: 11:00 am

Venue: YEUNG-B6619, 6/F

Yeung Kin Man Academic Building

Abstract

In this talk, I will share some of the exciting interfacial science research that my group has been conducting, which has implications for various engineering processes. The main topics that I will cover are:

- Impact-driven encapsulation of drops using interfacial shell layers and its extension to ferrofluids under magnetic fields.
- Cantilever-based technique to measure adhesion forces between surfaces and drops and its application to microplastics.
- Dual-wavelength interference microscopy to study the wetting of rigid and soft solids.
- Wetting of 2-D materials with potential applications of interfacial science for trapped ion systems.

I will demonstrate how our findings can enable new ways of manipulating drops, surfaces, and interfaces for various purposes, such as drug delivery, microfluidics, environmental remediation, and quantum computing. I hope to inspire the audience with the fascinating phenomena and challenges that interfacial science offers and how it can lead to novel engineering solutions.

Biography

Professor Sushanta MITRA is a full Professor in the Department of Mechanical & Mechatronics Engineering and is cross-appointed as a Professor of Chemical Engineering, Electrical & Computer Engineering, Physics & Astronomy, and Chemistry at the University of Waterloo. He serves as the Executive Director of Canada's largest nanotechnology institute – the Waterloo Institute for Nanotechnology (WIN). Before joining Waterloo, he had several administrative roles in Canadian higher education, including Department Chair (Lassonde School of Engineering), Associate Vice-President Research (York University) and Assistant Vice-President Research (University of Alberta). He also served as the President of the Canadian Society for Mechanical Engineering. For his contributions to science and engineering, he has been elected a fellow of several professional organizations, including the Canadian Academy of Engineering, the Royal Society of Chemistry, the American Physical Society, the Electrochemical Society, the American Association for the Advancement of Science and a foreign fellow of both the Indian National Academy of Engineering and the National Academy of Sciences India. He has an entrepreneurial mind, being the Founder & CEO of a Canadian startup, Aquabits Inc. (on quantum computing) and a Dutch startup, SLE Enterprises B.V. (on ultra-fast encapsulation technology), supported by Waterloo.