



THE CHINESE UNIVERSITY OF HONG KONG
Department of Physics
COLLOQUIUM

Droplet Physics for a Sustainable, Healthy, and Advanced Future

by



Professor Dan DANIEL
Physical Science and Engineering Division
King Abdullah University of
Science and Technology, Saudi Arabia

Date: December 10, 2024 (Tuesday)

Time: 4:00 - 5:00 p.m.

Join ZOOM Meeting: <https://128.pl/hTxX5>



ALL INTERESTED ARE WELCOME

Abstract

Droplet physics has traditionally been associated with classical problems such as heat transfer and phase change processes—areas of enduring significance. However, as societal challenges evolve, so too must the scope of droplet research. In this talk, I will present a forward-looking vision for droplet physics, highlighting its potential to address emerging and critical challenges across three interconnected themes: a sustainable future, a healthy future, and advanced manufacturing for the future.

I will demonstrate how droplet dynamics can revolutionise water harvesting technologies, paving the way for a more sustainable future. In healthcare, I will explore how the interaction of droplets with pitcher-plant-inspired surfaces can lead to innovative anti-fouling coatings for endoscopes, enhancing both functionality and safety. Finally, I will introduce an electrospray-in-a-drop technique—a potentially transformative approach to advanced manufacturing—that enables precise micro- and nanoscale fabrication with minimal environmental impact.

By bridging fundamental principles with transformative applications, droplet research is set to redefine its role in addressing the critical challenges of tomorrow, shaping a more sustainable, healthy, and technologically advanced future.

Enquiries: 3943 6303