



Department of  
Mechanical Engineering  
The University of Hong Kong



## SEMINAR

### **Development of Automated Point-of-care Aptamer-based Capillary Microfluidic Diagnostic Platform**

- Date:** 11 April, 2023 (Tuesday)  
**Time:** 2:30 p.m.  
**Venue:** Room 7-34, Haking Wong Building, HKU
- Speaker:** Mr. Lee Pui Chung (M.Phil. candidate)  
Department of Mechanical Engineering  
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#### **Abstract:**

Point-of-care (POC) diagnostics is an emerging field of clinical care research that involves the detection of biomolecules and biomarkers in a portable microsystem for the diagnosis of various disorders. Microfluidics offers robust and inexpensive analyses with minimal samples, yet the development and down streaming have not been entirely successful due to the requirements of expertise and the bulk nature of instruments, such as pumps, microscopes, analyzers, etc. Capillary microfluidics manipulates liquids using capillary effects, eliminating the need for complex fluidic systems and offering simple and direct diagnostic microsystems, making it suitable for POC diagnostics applications. The project focuses on the development of an automated and portable capillary microfluidic-based system that is able to perform consecutive loading through a dipping mechanism, enabling a versatile array of clinical and academic applications that involves multiple conjugations, washings, or repeated loading, such as ELISAs or aptamer-based assays. Currently, the platform has been used to perform standardized immunoassay, and applications with aptamer-based assay are being explored. All in all, the project sheds light on the usage of channel-based capillary microfluidics for complex assay procedures. In the seminar, the background, methodology, and some current directions of the development of the platform will be discussed.

ALL INTERESTED ARE WELCOME

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