



Department of
Mechanical Engineering
The University of Hong Kong



SEMINAR

A novel collision-based method for achieving high cellular delivery efficiency

- Date:** 24 April, 2023 (Monday)
Time: 10:00 a.m.
Venue: Room 7-34, Haking Wong Building, HKU
- Speaker:** Mr. WANG Zheng (PhD candidate)
Department of Mechanical Engineering
The University of Hong Kong

Abstract:

To allow drug molecules, DNA plasmids and nano-devices to enter the cell, transient pores must be created on the cell membrane. Conventional delivery methods often use electric field in achieving membrane poration (a process called electroporation). However, substantial cell death could be induced by the high voltage pulses employed. Alternatively, bioinspired carriers such as viral vectors, cell ghosts and extracellular vesicles can also be utilized to deliver DNA or mRNA into the intracellular space. However, it is difficult to use this method in delivering relatively large cargos like polymers and nano-machines.

Recently, the idea of using mechanoporation in achieving cellular delivery has received increasing attention. Specifically, different types of microfluidic chips have been developed to strain and disrupt the membrane of cells in a constrained microfluidic channel, eventually allowing particles to enter the cell. In this talk, progress along this direction will be reviewed first. After that, we will present our effort in developing a collision-based method for achieving high cellular delivery efficiency. Specifically, the design and optimization of our prototype system as well as preliminary test results will be introduced and discussed in details.

ALL INTERESTED ARE WELCOME

For further information, please contact Dr. Y. Lin at 3917 7955.