

SEMINAR SERIES

Summer 2019

Ming Wai Lau Centre
for Reparative Medicine
劉鳴煒復修醫學中心

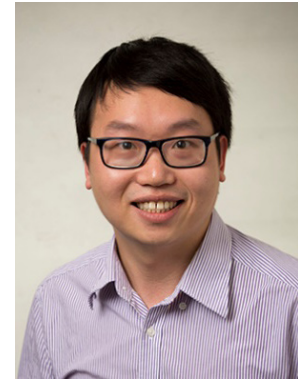


Application of Microfluidics in Bacteria Culture Separation and Detection

Dr Shunbo Li

Assistant Professor, School of Optoelectronics Engineering,
Chongqing University, China

Date: 30th July 2019 (Tuesday)
Time: 10:00 am - 11:00 am
Venue: Ming Wai Lau Centre for Reparative Medicine,
Science Park, Sha Tin



Abstract

Bacteria exist in any corner where life may exist, as long as there is water or water vapor, it can grow, even in some extreme environments such as strong acid, alkali, high salt, high temperature or low temperature. Bacteria are widely used in food, medicine, industrial, agricultural, and even environmental protection. There are many kinds of bacteria which may be good for the environment or human, and may be fatal to people. Therefore, separating their types and detecting the pathogenic ones are quite important for us. Bacteria culture is also used for studying the dynamic process or their interactions.

With the development of microfluidic, a multidisciplinary field dealing with fluids in a small, typically submillimeter scale, bacteria related research has reached to the single cell level. Compared with the traditional macroscopic system, the microfluidic system has the merits of controllable microenvironment, material saving, good repeatability and high-throughput. It is an ideal new platform for studying microscopic processes and individual characteristics of bacteria. The introduction of microfluidic is equivalent to provide a magnifying glass for the study of bacteria, observing the complex dynamic processes between them and their microenvironments, and understanding their interactions. I will present the recent development of microfluidics in bacteria researches mainly focus on culture, separation and detection.

Biography

Dr. Shunbo Li received his Bachelor's degree in Physics from Chongqing University, in 2009. Then he went to the Hong Kong University of Science and Technology (HKUST), where he obtained his PhD degree in Physics in 2014. After that Dr. Li joined Prof. Fiona Meldrum's group as a Research Fellow in School of Chemistry at University of Leeds, UK. Then, he joined School of Optoelectronics Engineering in Chongqing University in 2018 as Assistant Professor. He also has research experience at Okinawa Institute of Science and Technology (OIST), Japan, King Abdulla University of Science and Technology (KAUST), Saudi Arabia, European Synchrotron Radiation Facility, France and Diamond light source, UK. Dr. Li published more than 30 scientific papers and have a total citation more than 310. Dr. Li is the member of Chinese society of micro-nano technology and European Microfluidic and nanofluidic society and invited referees for several journals – Lab on a Chip, Sensors and Actuators b, Biomicrofluidics, Microfluidics and nanofluidics ect. His research interest is mainly focused on Analytical Chemistry, Micro/Nanofluidics, Point-of-care testing, and Advanced Optoelectronic detections.