

## **LiTone: 5D Light-Sheet Fluorescence Microscopy for Live-Cell Imaging**

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The most popularly used optical microscope in cell bioimaging is the confocal microscope developed in the 20th century. However, as a traditional optical-wave microscope, the confocal microscopy suffers from the severe phototoxicity and slow speed that leaves its application unsuitable for live-cell imaging. In this talk, the speaker will review the recent development of light-sheet microscopy for live-cell imaging in his group. They have invented a 5D (3D space + 1D time + 1D color) Line Bessel Sheet (LBS) microscope with lateral/axial resolution of 250 nm/350 nm, and 2 Hz temporal resolution per channel for a 3D volume of 30  $\mu\text{m}$  X 30  $\mu\text{m}$  X 30  $\mu\text{m}$ . As an ideal platform for live-cell high resolution bioimaging, the speaker will review its application in various biological cell systems. Currently, this microscopy technology has been successfully commercialized and released to market by their start-up company: Light Innovation Technology (LiT) Ltd. The works were supported by grants from the Offices of the Executive Vice-President and Provost, the Vice-President for Research & Graduate Studies and the Dean of Science at HKUST (Project no.: HKUST VPRGO12SC02), and the Hong Kong Research Grants Council (Project Nos. HKUST12/CRF/13G, C6030-14E).