
台灣大學應用力學研究所
演 講 公 告

主 講 人：陳壁彰教授

中央研究院應用科學研究中心 研究員
國立臺灣大學應用力學研究所 合聘教授

講 題：Beyond the diffraction limit by LightSheet Microscopy

摘 要： 如附件

主 持 人： 陳瑞琳所長

時 間： 115年3月16日（星期一）下午2時20分開始

地 點： 台灣大學應用力學研究所國際會議廳

☆☆ 歡迎聽講，敬請張貼 ☆☆

Beyond the diffraction limit by LightSheet Microscopy

Bi-Chang Chen

Abstract

By combining the intrinsic optical sectioning with wide-field detection, lightsheet microscopy allows fast imaging speeds to record multi-megapixel imaging of the selected plane in a single exposure. In order to break diffraction limit, coupled with structural illumination, we are now able to achieve final lateral and axial resolutions of 130 nm and 200 nm, respectively. On the other hand, one could combine the advantage of localization microscopy and lightsheet microscopy to have super-resolved cellular or deep-tissue imaging in 3D across large field of view. With densely labeled spontaneous blinking fluorophore, these allow us to construct 3D super-resolution multi-cellular imaging at high speed (~minutes) by lightsheet localization microscopy. Moreover, expansion microscopy (ExM) was invented to detour the optical diffraction limit by physically expanding the samples to ~80x larger than original with swellable polymer and lightsheet microscopy enables imaging such large specimens rapidly at high spatial and temporal resolution.