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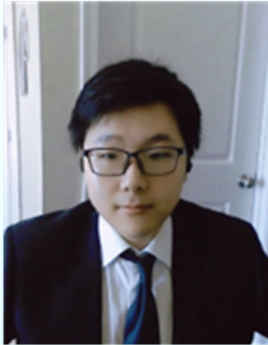


Department of Biomedical Engineering

Time: 11:00am, 21 April 2023 (Friday)

Venue: Lady Shaw Building C2 (G/F)

Computational high-throughput phase imaging



Dr. Chenfei Hu
Applied Materials, Inc.

Abstract

Quantitative phase imaging (QPI) is a label-free, wide-field microscopy approach that uses the natural phase shift of light as it passes through a transparent object, such as a living human cell, to quantify biomass distribution and spatial and temporal changes in biomass. QPI can provide both morphology and quantitative physical information in biomaterials. Since its conception, this technique has found broad applications in biomedical and material science. In this talk, I will present several studies on the high-throughput computational QPI methods. Harmonic optical tomography (HOT) aims at extending the capabilities of 3D QPI technique to nonlinear optical processes. Synthetic aperture interference microscopy (SAIL) allows high-SBP phase imaging of mesoscopic objects. The concept of phase imaging with computational specificity (PICS) enables high accuracy functional screening of cell culture without fluorescent labeling. Last but not least, I want to demonstrate the utility of QPI in semiconductor inspection. I will also share my short experience of working in the industry.

Biography

Dr. Chenfei Hu is working on integrated metrology at Applied Materials, located in Santa Clara, California. He obtained a bachelor's degree in Optoelectronics from Tianjin University in 2014, and received a M.S and Ph.D. degree in Electrical & Computer Engineering from Duke University in 2016 and University of Illinois at Urbana-Champaign in 2021, respectively. He has broad experience in biomedical optics and biophotonics with expertise in label-free optical imaging. Dr. Hu has published his research work in top-tier journals, including Nature Photonics, Nature Communications, Light: Science & Applications, and Science Advances.

***** ALL ARE WELCOME *****

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