SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
COLLEGE OF DESIGN AND ENGINEERING
Website: https://cde.nus.edu.sg/ece

Area: Microelectronic Technologies and Devices

Host: Prof Hong Minghui

TOPIC	**:**	**Bilayer-Film-Decorated Microsphere With Suppressed Interface Reflection For Enhanced Nano-Imaging**
SPEAKER	**:**	**Mr. Wu Guangxing** **Graduate Student, ECE Dept, NUS**
DATE	**:**	**Thursday, 14 April 2022**
TIME	**:**	**4.00PM to 5.00PM**
WEBINAR	**:**	**Join Zoom Meeting** **https://nus-sg.zoom.us/j/86057166026?pwd=M3p5c3BHNHN0OUREN295d3R2U1ZTUT09** **Meeting ID: 860 5716 6026** **Passcode: 119643**

ABSTRACT

Microspheres as special optical lenses have extensive applications due to their super-focusing ability and outstanding resolving power on imaging. The interface reflection between the microsphere and sample surface significantly affects nano-imaging as exhibited in the form of the Newton's rings pattern in virtual images. In this work, a new scheme of decorating the microsphere with a dielectric bilayer thin film is proposed to suppress the interface reflection and thus enhance the imaging performance. The particle swarm optimization algorithm is performed with a full-wave simulation to refine the bilayer thin film decorated microsphere design, which is successfully realized via a novel fabrication strategy. Experimental imaging results demonstrate that the Newton's rings pattern in virtual images is substantially diminished. Both the imaging contrast and effective field-of-view of the microsphere nano-imaging are improved via this effective light manipulation scheme, which is also applicable to promoting the performance of the microsphere in other optical applications.

BIOGRAPHY

Wu Guangxing is currently working towards his Ph.D. degree in the Electrical and Computer Engineering Department at the National University of Singapore. His current research interest focuses on improving the performances of microsphere nanoscope and extending its application region.

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