

SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
COLLEGE OF DESIGN AND ENGINEERING

Website: <https://cde.nus.edu.sg/ece>

Area: Metamaterials, Nanophotonics, Nanoprinting, Neuromorphic circuits

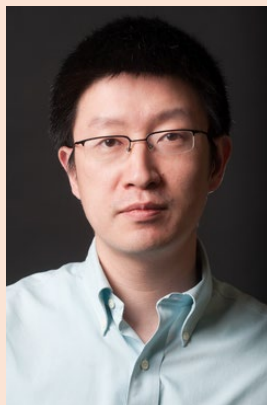
Host: Associate Professor Qiu Cheng Wei

TOPIC	:	Scalable Nanoprinting for Nanophotonics Computing Platform
SPEAKER	:	Professor Nicholas Xuanlai Fang The University of Hong Kong, China
DATE	:	Friday, August 4, 2023
TIME	:	10:30AM to 11:30AM
VENUE	:	Block E3, E3-06-08 College of Design and Engineering, NUS

ABSTRACT

Photonic platforms with multiplexing capabilities are of profound importance for high-dimensional information processing. In this talk, I will present our recent effort on advancing scalable nanoprinting methods compatible with nanophotonic computing platforms. In the first part, I will discuss an efficient and cost-effective grayscale stencil lithography method to achieve material deposition with spatial thickness variation, for spatially resolved amplitude and phase modulation suitable for flat optics and metasurfaces. In the second part, we show that selective ion doping of oxide electrolytes with electronegative metals shows promise for reproducible resistive switching that is critical for reliable hardware neuromorphic circuits.

BIOGRAPHY



Professor Fang recently joined the University of Hong Kong as a professor of Mechanical Engineering. Professor Fang earned his B.S. and M.S. degrees in Physics from Nanjing University, China, and his Ph.D. degree in Mechanical Engineering from the University of California at Los Angeles. From 2011 to 2022, he was on the faculty of Mechanical Engineering at MIT, where he was promoted to full professor with tenure in 2018. Professor Fang teaches and conducts research in the area of micro/nanotechnology. Professor Fang's research programs have focused on scalable manufacturing processes for wave functional materials. His work was highlighted by public media such as Discovery Channel and Popular Science and raised significant public interest in the search for new metamaterials beyond optical waves. His research on nanoarchitecture metamaterials was highlighted among the top 10 Emerging breakthrough technologies of the year 2015. His recognitions also include the OSA Fellow (2021); ASME Chao and Trigger Young Manufacturing Engineer Award (2013); the ICO prize from the International Commission of Optics (2011); the NSF CAREER Award (2009) and MIT Technology Review Magazine's 35 Young Innovators Award (2008).

<https://cde.nus.edu.sg/ece/highlights/events/>