SEMINAR ANNOUNCEMENT

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

Area: Microelectronic Technologies & Devices

Host: Associate Professor Ang Kah Wee

TOPIC	:	**Integrated Photonics for Data Communication, Sensing, and Quantum Applications**
SPEAKER	:	**Dr. Nanxi Li** **Scientist, Agency for Science, Technology, and Research (A*STAR), and** **Adjunct Assistant Professor, National University of Singapore (NUS)**
DATE	:	**Tuesday, 15 August 2023**
TIME	:	**1.00PM to 2.30PM**
VENUE	:	**Block E3, E3-06-02** **College of Design and Engineering, NUS**

ABSTRACT

Integrated photonics technology enables the miniaturization of optical devices on a single chip, offering robustness and low-cost wafer-scale fabrication. This technology has found applications in high-speed optical communications, facilitating high data transmission rates, as well as in cloud computing within data centers, contributing to reduced power consumption. In this presentation, we will provide an overview of the background of integrated photonics technology, followed by a discussion on the development of integrated light sources and optical phased arrays on silicon. These advancements have significant implications for communication systems and 3D LiDAR sensing applications. Additionally, we will delve into the pioneering wafer-scale fabrication platform for large-area metasurfaces on 12-inch silicon and glass wafers. Furthermore, we will explore MEMS emitters fabricated on 8-inch silicon wafers, specifically designed for optical sensing applications. Lastly, we will touch upon the promising prospects of integrated photonics platforms for future advancements in quantum communication and computing.

BIOGRAPHY

Dr. Nanxi Li is a scientist at the Agency for Science, Technology, and Research (A*STAR) and an adjunct assistant professor at the National University of Singapore (NUS). He received his B.E. degree (First Class Honors) in Electrical and Electronic Engineering from Nanyang Technological University (NTU) in 2012. In 2013, he embarked on his graduate studies at Harvard University, where he earned his M.S. degree in 2015 and Ph.D. degree in 2018, both in Applied Physics. Throughout his Ph.D. studies, he also served as a visiting student at the Massachusetts Institute of Technology (MIT). His research interests encompass silicon photonics, MEMS-based sensors, metasurfaces, and fiber optics.