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: Dr. Zhou Hong

TOPIC	:	**Mid-infrared Silicon-on-Lithium-Niobate Electro-Optic Modulators towards Integrated Spectroscopic Sensing Systems**
SPEAKER	:	**Mr. Xu Siyu** **Graduate Student, ECE Dept, NUS**
DATE	:	**Monday, 03 October 2022**
TIME	:	**9:00AM to 9:30AM**
WEBINAR	:	**Join Zoom Meeting:** **https://nus-sg.zoom.us/j/88518289996?pwd=d2JoZ0wrQzNoVjdGRWVUSEtsUjI2dz09** **Meeting ID: 885 1828 9996** **Passcode: 595925**

ABSTRACT

Mid-infrared spectroscopy is an emerging technique in various applications such as molecule identification and label-free chemical sensing. Integrated photonic platforms have a promising potential to perform miniaturized spectroscopic sensing with the advantage of compact footprint, low cost, and low power consumption. The emergence of silicon photonics has established monocrystalline silicon as a preferred material for large-scale integrated photonic devices. However, silicon lacks the proper material characteristics for all the functionalities that are required for photonic integrated circuits, such as electro-optic effect. To unleash the full capacities of silicon photonics, we built silicon photonic devices on lithium niobate substrate to simultaneously leverage the prominent electro-optic effect and circumvent the absorption originating from oxides. In particular, a reliable transfer printing method is presented for flexibly integrating the monocrystalline silicon waveguides with foreign substrates. In the fabricated silicon-on-lithium-niobate platform, we exploit the electro-optic performance via Mach-Zehnder interferometer for operation in the mid-infrared regime, providing a promising pathway toward an integrated spectroscopic sensing system based on silicon photonics.

BIOGRAPHY

Xu Siyu is currently pursuing the Ph.D. degree under the supervision of Prof. Vincent Lee Chengkuo in the Department of ECE, NUS. He received his B.Eng. degree in Microelectronic Science and Engineering at Shenzhen University, China in 2019. After that he received his M.Sc. degree from the Department of ECE, NUS in 2020. His research interests are focused on mid-infrared integrated photonics.

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