

SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
COLLEGE OF DESIGN AND ENGINEERING

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

Area: Microelectronic Technologies & Devices (MTD)

Host: Dr Zheng Zijie

TOPIC	:	Germanium Photodetectors with >100 GHz Bandwidth and >1.1 A/W Responsivity on 200-mm Silicon Photonics Platform
SPEAKER	:	Mr Sun Jiawei Graduate Student, ECE Dept, NUS
DATE	:	Tuesday, 14 July 2026
TIME	:	10:30AM-11:00AM
VENUE	:	Join Zoom Meeting https://nus-sg.zoom.us/j/3391485944?pwd=jJiZafaU9UjMgtCAJUbv0GMk4nDt9c.1&omn=81423406356 Meeting ID: 339 148 5944 Passcode: 890235

ABSTRACT

In this seminar, we will show Ge PDs with the highest recorded bandwidth-efficiency product of 121.5 GHz·A·W⁻¹, using standard 200-mm silicon photonics integration process. By combining optimized Ge growth in recessed silicon and lateral P-i-N diode design, we achieve balanced performance in terms of bandwidth, responsivity, and dark current. Wafer-scale device characterization shows 101 ± 1.4 GHz bandwidth, 1.16 ± 0.06 A/W responsivities, and 23.2 ± 2.7 nA dark current upon bias voltage of -2 V at wavelength of 1550 nm. The demonstrated Ge PD with high performance and wafer-scale uniformity is ready to enable 400 G/lane optical receivers.

BIOGRAPHY

Sun Jiawei is currently pursuing his Ph.D. degree under the supervision of A/Prof. Xiao Gong with Department of Electrical and Computer Engineering (ECE), National University of Singapore (NUS). His current research interest is High Speed Germanium Photodetectors.

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