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	:	**LWIR Nanoantenna-Mediated Graphene Photodetectors for Sensitive Polarimetry**
SPEAKER	:	**Mr. Xie Junsheng** **Graduate Student, ECE Dept, NUS**
DATE	:	**Tuesday, 27 September 2022**
TIME	:	**1:30PM to 2:00PM**
WEBINAR	:	**Join Zoom Meeting:** **https://nus-sg.zoom.us/j/85838234411?pwd=WkVwbXhiSkpHR0pFYlFrSUV5cTRxUT09** **Meeting ID: 858 3823 4411** **Passcode: 360092**

ABSTRACT

Polarimetry base on 2D materials attracts a lot of interest as their intriguing optoelectronics and potential for on-chip miniaturization. However, many 2D materials suffer from low absorption rate in long-wave infrared (LWIR) due to their intrinsic bandgaps. Here, we report a LWIR nanoantenna-mediated graphene photodetector with polarization sensitive photoresponse utilizing bulk photovoltaic effect (BPVE). Our device shows a high responsivity and a low noise equivalent power under zero source-drain bias. The nanoantenna-mediated photodetectors show a sensitive polarization dependence in the LWIR range. Furthermore, a negative polarization ratio is observed in our device, which allows subtle measurement of polarization angle perturbation down to 0.04° $Hz^{-1/2}$. Our results pave the way to on-chip optical integration.

BIOGRAPHY

Xie Junsheng received his Bachelor degree from Nanjing University, Nanjing, China. He is now a Ph.D. student at the Dept of ECE of NUS. His research interests mainly focus on Mid-IR photodetectors and sensors.

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