

SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
FACULTY OF ENGINEERING

Website: <https://www.eng.nus.edu.sg/ece/>

Area: Microelectronic Technologies and Devices

Host: Assoc Prof Zhu Chun Xiang

TOPIC	:	Towards Low-Drift and Reference-Electrode-Free ISFETs by Double Graphene Sensing Films with Engineered Different Sensitivity
SPEAKER	:	Mr Zeng Zhe Graduate Student, ECE Dept, NUS
DATE	:	Friday, 3 September 2021
TIME	:	2.00PM to 2.30PM
WEBINAR	:	Join Zoom Meeting https://nus-sg.zoom.us/j/88411977902?pwd=anNSU1Z2UjZBejIGRkg3by9OTWpKUT09 Meeting ID: 884 1197 7902 Passcode: 111111

ABSTRACT

A reference-electrode-free pH ISFET has been demonstrated for the first time with two graphene sensing films treated with different plasma sources and exhibiting different pH sensitivities. The sensitivity of this device reads the sensitivity difference of the individual films, which is due to their face-to-face series connection and their opposite-signed double layer potentials in the electrolyte. Meanwhile, we have found that this configuration also compensates the drift rate by cancelling each other with opposite sign because the two individual films, both are graphene based, exhibit similar drift behaviours. All these result in a low-drift and reference-electrode-free pH sensing ISFE, which is promising for future developments and applications.

BIOGRAPHY

Zeng Zhe graduated with bachelor's degree of Electrical and Electronic Engineering from Nanyang Technological University (NTU) in 2016. He is currently pursuing PhD degree at Electrical and Computing Engineering (ECE) of National University of Singapore (NUS). His research interests are in the area of two-dimensional materials and their applications as pH sensors.

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