SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
FACULTY OF ENGINEERING
Website: https://www.eng.nus.edu.sg/ece/

Area: Microwave & Radio Frequency

Host: Asst Prof John Ho

TOPIC	**:**	**Wireless Millimeter-scale Neural Stimulator with Closed-loop Communication**
SPEAKER	**:**	**Ms. Weni Sritandi** **Graduate Student, ECE Dept, NUS**
DATE	**:**	**Friday, 17 December 2021**
TIME	**:**	**10.00AM to 11.00AM**
WEBINAR	**:**	**Join Zoom** **https://nus-sg.zoom.us/j/82223197896?pwd=aGJzUXJNY3BLemRGSU5lcXlacWxjUT09** **Meeting ID: 822 2319 7896** **Passcode: 422855**

ABSTRACT

Neural stimulation has emerged as a treatment for various neurological disorders. To date, commercial neural stimulators such as pacemakers and cochlear implants are bulky since they rely on batteries as their source of power. Long leads are often utilized to deliver electrical charges from the stimulator to the targeted nerve. These features limit the ability of existing devices to target small peripheral nerves that regulate many important physiological processes. In this seminar, I will present a tetherless, millimetre-scale neural stimulator designed to deliver biphasic, constant-current stimulation. Firstly, I will introduce the architecture of our programmable ASIC and its electrical characteristics. Next, I will present how RF near-field scheme and harmonic feedback can be integrated with the ASIC to establish wireless power and telemetry exchange. The integration of these features allows for the realization of a miniaturized neural stimulator that is battery-free, leadless, and capable of bidirectional communication.

BIOGRAPHY

Ms. Weni Sritandi received her B.Eng. in Electrical Engineering from the National University of Singapore in 2018. She is now a second-year Ph.D. candidate, and her main research interests are wireless implantable devices and neural stimulators.