

SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

Faculty of Engineering

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

Area: Microelectronic Technologies & Devices

Host: Asst Prof Gong Xiao

TOPIC	:	Fabrication Process Development and Electrical Characterization for InGaAs HEMTs on Si Substrates
SPEAKER	:	Mr Wang Chengkuan Graduate student, ECE Dept, NUS
DATE	:	6 July 2020, Monday
TIME	:	3pm to 4pm
WEBINAR	:	https://nus-sg.zoom.us/j/3338678256?pwd=NmZ3TXRMZUVDWGNYanFFcEpaU2Jkdz09 Meeting ID: 333 867 8256 Password: 454431

ABSTRACT

Transistors with InGaAs as the channel material have emerged as one of the leading candidates for medium-power and low-noise amplifiers at millimeter-wave and submillimeter-wave frequencies. InGaAs material has superior electron transport characteristics and can be operated at a lower voltage as compared with Si to achieve the same performance owing to the higher mobility and higher source injection velocity of InGaAs. Hybrid circuits that exploit the advantages of both III-V (InGaAs, GaN etc.) and Si-CMOS devices can enable electronic functions at higher-speed and higher bandwidth. Such integration of materials can be achieved by monolithic or heterogeneous approaches. So, a device technology for InGaAs HEMTs with a Si-CMOS compatible front-end process (lift-off and Au free) is fabricated. A comprehensive study of process challenges and trade-offs of the material and structure designs in these devices on Si substrates is performed.

The objectives of this seminar are two-fold. First, backgrounds and recent progresses of InGaAs HEMTs will be introduced. Second, the fabrication details and electrical performance of our InGaAs HEMTs device on Si substrates will be presented.

BIOGRAPHY

Wang Chengkuan is a PhD student at National University of Singapore (NUS), advised by Asst Prof Gong Xiao. His research interest covers microelectronic devices. At present, he is doing projects about InGaAs HEMT devices on Si.

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