SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
COLLEGE OF DESIGN AND ENGINEERING
Website: https://cde.nus.edu.sg/ece

Area: Microwave & Radio Frequency

Host: Professor Chen Zhi Ning

Technical Seminar Jointly Organized by
IEEE Singapore RFID and ECE NUS

Merlion RFID Forum 2023 Paper Sharing Series

TOPIC	:	**Dual-Band Circular-Polarized Microstrip Antenna for Ultrawideband Positioning in Smartphones With Flexible Liquid Crystal Polymer Process**
SPEAKER	:	**Professor Yue Li** **Tsinghua University, China**
DATE	:	**Monday, 24 April 2023**
TIME	:	**4:00PM to 5:00PM**
VENUE	:	**E4-04-05, E-cube 1** **College of Design and Engineering, National University of Singapore** **Alternatively,** **Join Zoom Meeting** https://nus-sg.zoom.us/meeting/register/tZYsduurpj8tGdCtaXFX4XJ5GseP-JhOhRIF **[Registration is required]** **Meeting ID: 821 1238 4734** **Passcode: 506978**

ABSTRACT

This talk introduces a technique to design a dual-band circular-polarized (DBCP) microstrip antenna using flexible liquid crystal polymer (LCP) manufacturing process for ON-smartphone ultrawideband (UWB) positioning application. To achieve dual-band circular polarization in a low profile, the proposed antenna is designed with a cross-slot-loaded patch with four L-shaped feeding probes and a sequential phase feeding network. A circle of capacitive via fence is loaded surrounding the patch for area miniaturization, which is adaptive for the limited space of flexible printed circuit (FPC) in smartphones. Based on the UWB positioning protocol, a three-element antenna array is constructed in a low profile of 0.015 λ_0 with required isolation of 17 dB. Experimental results show the overlapped bandwidth of the efficiency and the axial ratio (AR) covering the demand bands of 6.30–6.80 and 7.75–8.10 GHz. With the properties of dual wideband operation, circular polarization, and ultralow profile, the proposed antenna exhibits feasible solutions for the UWB positioning application in space-limited smartphones.

BIOGRAPHY

Yue Li is Associate Professor in the Department of Electronic Engineering at Tsinghua University. His current research interests include metamaterials and antennas. He has authored and coauthored over 200 journal papers, including Science, Science Advances, Nature Communications, IEEE Transactions on Antennas and Propagation, and so on. He was the recipient of the Issac Koga Gold Medal from URSI. He is serving as the Associate Editor of four journals, including IEEE Transactions on Antennas and Propagation, IEEE Antennas and Wireless Propagation Letters, Microwave and Optical Technology Letters, and Computer Applications in Engineering Education. E-mail: lyee@tsinghua.edu.cn

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