



IEEE MTT/AP Orlando Chapter & Raj Mittra Distinguished Lecture Program

**“Theory of Characteristic modes application to MIMO Antennas”**

**DATE/TIME: Wednesday, October 17, 2018 (4:00 PM-5:00 PM)**

**SPEAKER:** Dr. Asim Ghalib

Visiting Research Scholar at University of Central Florida (UCF), Florida, USA

**ABSTRACT:**

Fourth Generation (4G) and fifth Generation (5G) wireless communication devices rely on multiple-input-multiple-output (MIMO) technology to provide enhanced data rates. Antenna design for MIMO systems is a challenging task in any communication system. Theory of characteristic modes (TCM) was proposed to provide some insight into the design and analysis of antennas.

This talk will focus on the introduction of TCM and will discuss its application in various areas. It will also discuss the application of TCM to printed MIMO antenna design. Different applications of the TCM such as the development of a systematic method to predict, whether the isolation between the adjacent MIMO antenna elements can be enhanced or not. The application of TCM to design a 4-element MIMO frequency reconfigurable antenna will be investigated. This talk will also highlight the shortcomings of the TCM approach such as the use of the chassis as a main radiating element and the antenna elements as an exciter.

**BIOGRAPHY:**



ASIM GHALIB received BSc and MSc in Electrical Engineering from the University of Engineering and Technology, Peshawar, Pakistan in 2011 and 2014, respectively. He obtained his PhD in Electrical Engineering in May 2018 from King Fahd University of Petroleum and Minerals (KFUPM), Dhahran, Saudi Arabia. He is currently working as a Visiting Research Scholar at University of Central Florida (UCF), Florida, USA.

His research interests include printed MIMO antennas, millimeter wave antennas, and design and analysis of MIMO antennas based on the theory of characteristic modes. He was the recipient of the best paper award at the IEEE Middle East Conference on Antenna and Propagation. His work resulted in several publications in international journals and conferences.

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