Seminar on

Surface wave, goodie or baddie?

by

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Date : 13 November 2015 (Friday)
Time : 11:00 am – 12:00 noon
Venue : Room 15-202, 15/F, meeting room of State Key Laboratory of Millimeter Waves, 15/F, Academic 3, City University of Hong Kong

Abstract

Electromagnetic surface waves have been known about for over one hundred years. Since Hertz's paper in 1893, a significant amount of theoretical work has been undertaken, with several types of surface waves being studied by Sommerfeld, Zenneck Norton and Gobau. Most recent research, has been focused on how to attenuate or stop them propagating with surface waves in general being considered a nuisance and an inefficiency. However, we believe Zenneck surface wave provides flexible two-dimensional (2D) wireless solution and shows many advantages such as power savings, excellent electromagnetic compatibility (EMC) characteristic, non-line-of-sight communication over traditional space wave wireless communication systems. When compared to wired system, SW system provides a wide band channel for one-to-many / many-to-one communications.

This seminar will discuss the design of wideband and high efficient aperture SW transducer, selecting the best reactive surface impedance and evaluating link system budget. Further, a 3D-model is adopted to determine the relationship between the beamwidth and aperture width. Finally, the concept of SW gain is proposed and the SW wireless link equation is formulated.

Biography

Dr Kin-Fai Tong is a Senior Lecturer and a member of the Sensors, Systems and Circuits Group at the Department of Electronic and Electrical Engineering, UCL. Dr Tong has strong interest in novel antenna design and microwave/mmWave measurement for different applications such as wireless communication, radar and medical related devices. He was one of the first who introduced the idea of integrating microstrip patch antennas into mobile phone handsets. His work on wideband U-slot microstrip patch antennas has been cited by more than 750 times. Prior to joining UCL, he was an Expert Researcher in the Photonic and Millimetre Devices Group of the National Institute of Information and Communications Technology (NiCT) in Japan. He was awarded an Incentive Research Fund from the Institute to expand his work in the application of low-k materials to mmWave antennas for microwave photonic integrations. He has co-authored three book chapters on planar antenna designs and published over 100 journal and conference papers. He was also the Lead in UCL for the UK-China Science Bridges: R&D on (B)4G Wireless Mobile Communications (UC4G) project (EP/G042713/1). Furthermore, his novel 3-dimensional orthogonally linearly polarised antenna design supported by the project has resulted in a patent filed. Currently, Dr Tong is working actively in reconfigurable antennas through two industrially sponsored projects.

***** ALL ARE WELCOME *****

Enquiries:

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