State Key Laboratory of Terahertz and Millimeter Waves (City University of Hong Kong)

Department of Electrical Engineering
香港城市大學 City University of Hong Kong

IEEE (HK) Section AP/MTT

Seminar On

An Advocated Base Station Antenna Design Scheme, From 4G to 5G

By

Dr Can Ding

Lecturer

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Date : 2 August 2019 (Friday)

Time : 11:00 am – 12:00 nn

Venue : Room 15-202, 15/F, State Key Laboratory of Terahertz and Millimeter Waves, Lau Ming Wai Academic Building, City University of Hong Kong

Abstract

This talk will first summarize the major concerns and main challenges of 3G/4G base station antenna design. Some key technologies to solve these issues will be presented with a glance of insights. Based on the understanding of the presented techniques, how they can be utilized in 5G sub-6 GHz base station antennas will be discussed. In specific, the electromagnetic fundamentals that govern the performance characteristics of dual-polarized tightly-coupled cross-dipoles that are widely used in cellular base station applications are investigated. The mutual coupling effects and their impact on standard performance indices are stressed. Links between the physical dimensions of the components of this model and key radiation characteristics, including directivity, half-power-beamwidth (HPBW), and cross polarization discrimination (XPD) levels, are established. The model guides the introduction and optimization of a cross-dipole structure that exhibits excellent performance. A general and optimal impedance matching method is presented by adding more radiators to get more performance. The talk is not limited in antenna element but will also address some key concerns in arrays.

Biography

Can Ding obtained a Bachelor Degree in Microelectronics from Xidian University, and a PhD Degree from Macquarie University in antennas and microwave circuits. Since May 2015, Dr. Ding has been working as a Postdoctoral Research Fellow at GBDTC in the University of Technology Sydney (UTS) on advanced base station antenna technologies. He is now a Lecturer with GBDTC in UTS.

Thanks to his technical contributions, his research has led to three major industrial research funds from Tongyu Communications Australia Pty. Ltd. on various base station antennas. The outcomes of the projects have been successfully used around the world, and especially in Australia's largest telecommunication operator, i.e., Telstra's cellular network.

Despite the industrial nature of the projects he has been working on, Dr. Ding has authored and co-authored over 50 top-tier journal and international conference papers, one book and he holds 3 international patents and 1 Chinese patent.

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

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