

*Department of Electronic Engineering &
IEEE AP/MTT Hong Kong Joint Chapter
Jointly Present a Postgraduate Research Seminar Series*

Session I

**Design of the Dual-function and Dual-band Transparent
Hollow Hemispherical Dielectric Resonator Antenna**

By

Mr Xiaosheng Fang

Supervisor: Prof K W Leung

Date : 9 September 2011 (Friday)
Time : 2:30pm - 3:00pm
Venue : **Lecture Theatre 17**, 4/Floor, Academic Building, City University of Hong Kong

Abstract

A dual-function and dual-band transparent hollow hemispherical dielectric resonator antenna (DRA) is proposed. The TE₁₁₁ and TE₁₁₃ modes of the hemispherical DRA are utilized to design the dual-band DRA. To facilitate the designs, new engineering formulas that determine the dimensions of the dual-mode DRA are found by using the covariance matrix adaptation evolutionary strategy (CMA-ES). The hemispherical DRA is fabricated with glass, and the transparent feature enables it to be a light cover by accommodating the light source in the hollow region. Measurements were carried out to verify the HFSS simulations and good agreement between them is observed.

Brief Biography

Mr Fang received his Bachelor Degree at Sun Yat-sen University in 2008. He is now working towards the Doctor of Philosophy in Electronic Engineering at City University of Hong Kong. His research interest includes dielectric resonator antenna.

Session II

The Analysis of Helical Antenna Loaded with a Bi-isotropic Core Using MoM

By

Mr Jian Bao

Supervisor: Prof Edward Yung

Date : 9 September 2011 (Friday)
Time : 3:00pm – 3:30pm
Venue : **Lecture Theatre 17**, 4/Floor, Academic Building, City University of Hong Kong

Abstract

A helical antenna loaded with a bi-isotropic core is investigated numerically. To solve the problem when both conductor and bi-isotropic material existed, VSIE is used to develop the matrix equations which needed to employ MoM. To circumvent the difficulty caused by the complex constitutive relationship of bi-isotropic material, a set of equivalent sources is proposed. A solenoidal basis function is used to make the numerical solution less complex and more efficient. Some numerical results are provided at the end.

Brief Biography

Mr Bao received his Bachelor Degree at Zhejiang University in 2005 and MPhil Degree at City University of Hong Kong in 2007. He is now working towards his PhD degree at the same university. His research interest includes computational electromagnetics, antennas, scattering problems and metamaterials.

**** All are welcome ****