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

An Improved Multilevel Green's Function Interpolation Scheme for 3D Full-Wave Problems

By

Mr Peng Zhao

Date : 15 December 2011 (Thursday)

Time : 10:00am – 11:00am

Venue : **G5-133**, 5/Floor, Green Zone, Academic Building, City University of Hong Kong

Abstract

Since the method of moment (MoM) generates a dense matrix system, it takes a long time and a large amount of memory storage to solve the matrix equation. Therefore, an acceleration method is required to improve the efficiency. The multilevel Green's function interpolation method (MLGFIM) as one of the recently published fast algorithms has been successfully applied to 3D full-wave problems. As the kernel of this algorithm, Green's function interpolation determines the accuracy and efficiency of MLGFIM. In this seminar, we will report two approaches to improve the interpolation. Firstly, a series of oscillatory radial basis functions (RBFs) with Bessel functions of different orders are compared at different cube lengths. An adaptive choice of the interpolation functions with the best orders is then adopted to enhance the interpolation accuracy. In order to further improve the interpolation accuracy, a new type of boundary clustering procedure is proposed to reduce the error near the cube boundary which dominates the total error. Numerical results reveal that the interpolation accuracy is significantly improved using the adaptive oscillatory RBFs with non-uniform new staggered Tartan grid which is generated by the boundary clustering procedure.

Brief Biography

Mr. Zhao received his B.Eng degree and M.Phil degree in Electronic Engineering Department both from Zhejiang University in year 2006 and 2008, respectively. He is now working towards the PhD degree in City University of Hong Kong. His research interest focuses on computational electromagnetics.

**** All are welcome ****

This seminar will be chaired by Prof C H Chan, Department of Electronic Engineering, City University of Hong Kong.