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The IEEE Ottawa Antennas and Propagation Society and Microwave Theory & Techniques Society (AP / MTT) Joint Chapter, Electromagnetic Compatibility (EMC) Chapter and IEEE Ottawa Section (OS), are inviting all interested IEEE members and other engineers, technologists, and students to a technical seminar on

Introduction of Oblique Incidence Plane Wave to Stratified Lossy Dispersive Media for FDTD Analysis

by

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DATE: Friday, December 16, 2011.

TIME: Refreshments, Registration and Networking: 12:00 p.m. – 12:30 p.m.; Seminar: 12:30 p.m. – 1:30 p.m.

PLACE: University of Ottawa, School of Electrical Engineering and Computer Science, SITE Building, Room 5084 (Boarding Room), 800 King Edward Avenue, Ottawa, Ontario, Canada.

Admission: Free. Registration required. To ensure a seat, please register by e-mail contacting: Qingsheng Zeng (qingsheng.zeng@crc.gc.ca) or Syed Bokhari (Syed.Bokhari@fidus.com).

Abstract

In the application of finite-difference time-domain (FDTD) method to the wideband plane wave scattering analysis of objects embedded in stratified lossy dispersive media, it is a challenge to solve the obliquely incident wave. In this presentation, a novel configuration of auxiliary one-dimensional (1-D) FDTD grids is proposed to provide the obliquely incident plane wave at the total-field scattered-field (TFSF) boundary in stratified lossy dispersive media. Thus a closed TFSF boundary is formed, where the incident waves are directly obtained from the auxiliary simulations without any interpolation. The formulations of the auxiliary simulations are presented by the modified 1-D Maxwell's equations. Given the dispersion characteristic, perfectly matched layer (PML) is implemented to the 1-D simulations. Examples demonstrate the effectiveness of the proposed technique of obliquely incident wave introduction.

Speaker's Bio

Penghui Chen received the B.S. degree in electrical engineering from Beihang University (BUAA), Beijing, China, in 2007. He is currently pursuing the Ph.D. degree in electrical engineering in BUAA.

As a Ph.D. student in BUAA, he accomplished one project under his supervisor Xiaojian Xu, supported by National Nature Science Foundation of China from 2008 to 2010. Since October 2011, he has been a visiting Ph.D. student in University of Ottawa supported by Beihang University Scholarship Fund to pursue PhD study. His research interests include computational electromagnetics, wave propagation and scattering in lossy dispersive medium.