

Seminar on

Three-Dimensional Frequency Selective Structures: Opportunities and Challenges

by

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Abstract

Conventional frequency selective surface (FSS) consists of a two-dimensional (2-D) periodic array of unit-cells, which are either printed on a dielectric layer or etched out of a conductive surface. These simple 2-D surfaces suffer from poor frequency selectivity and unstable response under different incident angles. Recently, an innovative concept of three-dimensional (3D) frequency selective structure was proposed to alleviate the disadvantages of traditional FSSs. The new 3-D frequency selective structure is composed of a 2D periodic array of vertical microstrip lines, which is very promising for the realization of compact high-performance FSSs. This talk will introduce the proposed 3-D frequency selective structure. Mode-matching formulation for analyzing the structure will be briefly presented and equivalent circuit model will be employed to explain the operating principle of these three-dimensional FSSs. A number of design examples will be presented to demonstrate the filtering response of 3D FSSs. Possible research topics for further investigation are also suggested at end of the talk.

Biography

Zhongxiang Shen received the B. Eng. degree from the University of Electronic Science and Technology of China, Chengdu, China, in 1987, the M. S. degree from Southeast University, Nanjing, China, in 1990, and the PhD degree from the University of Waterloo, Waterloo, Ontario, Canada, in 1997, all in electrical engineering.

From 1990 to 1994, he was with Nanjing University of Aeronautics and Astronautics, China. He was with Com Dev Ltd., Cambridge, Canada, as an Advanced Member of Technical Staff in 1997. He spent six months each in 1998, first with the Gordon McKay Laboratory, Harvard University, Cambridge, MA, and then with the Radiation Laboratory, the University of Michigan, Ann Arbor, MI, as a Postdoctoral Fellow. In 1999, he joined Nanyang Technological University, Singapore, where he is presently an Associate Professor in the School of Electrical and Electronic Engineering.

His research interests include design of small and planar antennas for various wireless communication systems, design of thin absorbing layers, hybrid numerical techniques for modeling RF/microwave components and antennas. He has authored or co-authored more than 110 papers published in international journals (among then 57 were published in IEEE Journals) and presented more than 100 conference papers.

Date : 19 Jul., 2012 (Thursday)
Time : 10:00am – 11:00am
Venue : P4302, Academic 1,
City University of Hong Kong

*** ALL ARE WELCOME ***

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