A SEMINAR

ON

Metamaterials :

A New Paradigm in Electromagnetics

DATE- 23rd DECEMBER, 2010

VENUE- SPACE APPLICATIONS CENTRE, AHMEDABAD

TIME- 14.00 – 16.30 HRS

ORGANIZED BY

IEEE AP/MTT JOINT CHAPTER, GUJARAT SECTION, AHMEDABAD

ABOUT TOPIC

Seminar is aimed to cater the requirements of professionals, researchers, academicians working in the field of Electromagnetics and Microwave Engineering. Experts from the academics will be delivering talks on Metamaterials .

1. Metamaterials- A new Paradigm in Electromagnetics by Prof A. RamaKrishna, Indian Institute of Technology, Kanpur

Abstract- *Over the past decade, it has been realized that design structures at subwavelength scales with electromagnetic resonances can lead to qualitatively new phenomena. Examples are large and / or negative electromagnetic material parameters such as permittivity, permeability, chirality, bianisotropy, extreme anisotropy and so on. In this talk, Expert will review how structure can be used to manipulate the flow of light and outline a few new kinds of devices proposed in the last few years. Examples are superlenses for subwavelength imaging and focusing, and cloaking devices for electromagnetic invisibility.*

2. Left-Handed Metamaterials Transmission Line and its application in Microwave Filters by Prof Kumar Vaibhav Srivastava, Dept. of Electrical Engineering, IIT, Kanpur.

Abstract- *Metamaterials (MTMs) are the artificial composite structures having simultaneously negative values of permittivity and permeability. The Electric (E), Magnetic (H) and Wave (k) vectors of the electromagnetic (EM) wave interacting with MTM forms a left handed triad, so these are also called Left Handed Materials (LHMs). The left handedness of EM waves in a MTM provides various new properties which can be used in microwave components such as waveguides, couplers, power dividers, resonators and filters for size reduction, dual band, enhanced bandwidth, backward wave coupling, phase compensation and propagation of evanescent waves etc. The physical realization of LHM can be obtained either by combining resonant structures, such as Spit Ring Resonators (SRRs) and wires, providing negative permittivity and permeability respectively, or by transmission line (TL) approach with series capacitance and shunt inductance. In any type of implementation the periodic repetition of fundamental element, called unit cell, under the homogeneous limit constitutes the composite structure of the MTM. The proposed talk discusses about the realization of left handed transmission lines (LH TL), its advantages and drawbacks over the conventional transmission line. It also shows the novel type of unit cell where the unit cell is realized using radial stubs in place of via in microstrip environment. It also explains the length independent zeroth order resonance (ZOR) property of the LH TL where the resonance becomes the independent of physical length of transmission line.*

REGISTRATION DETAILS

Registration Fee- No registration Fee.

Duly completed registration form to be submitted to following contact details

Contact Details-

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AP/MTT Joint Chapter, Gujarat Section

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METAMATERIALS- A NEW PARADIGM IN ELECTROMAGNETICS

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REGISTRATION FORM

REGISTRATION DETAILS

NAME		
GENDER		
AFFILIATION		
CATEGORY	1) ACADEMIC INSTITUTION- STUDENT 2) ACADEMIC INSTITUTION- FACULTY 3) OTHERS	
IEEE MEMBER	1) YES 2) NO	IEEE MEMBERSHIP NO (IF YES) -
ADDRESS OF CORRESPONDANCE	CITY- EMAIL- CONTACT PHONE NO- MOB.-	

DATE- **SIGNATURE OF PARTICIPANT**