



## **IEEE AP-S Region10 Distinguished Speaker Programme**

Organized by

**IEEE Antennas and Propagation Society (AP-S) Madras Chapter**

in association with

**IEEE Madras Section**

**Tuesday, 4 August 2015**

### **Objective**

The Distinguished Speaker Programme, operated by the IEEE AP-S Madras Chapter, aims to contribute to faculty development and inspiration in respect of electromagnetic theory teaching and research, and to offer insights into the subject not readily available in text books.

### **Who may attend**

Faculty handling electromagnetics, antennas and propagation and related subjects. Doctoral students working in these areas are also welcome.

### **Venue**

Meeting Hall L1 (opp. to IEEE Madras Section Office), ISTE Professional Center, Gandhi Madapam Road, Kotturpuram, Chennai – 600 025. (Land mark – Opp. to Anna Centenary Library).

### **Schedule**

<b>8:30 am – 9.00 am</b>	<b>Registration</b>
<b>9.00 am – 11.00 am</b>	<b>Periodic Structures and their Applications to Antennas</b> Dr. A Alphones, Nanyang Technological University, Singapore
<b>11.00 am – 11.15 am</b>	<b>Tea</b>
<b>11.15 am – 1.15 pm</b>	<b>Development of Educational App with FDTD Simulations on Portable Devices</b> Dr. Eng Leong Tan, Nanyang Technological University, Singapore

## **Registration**

While there is **no fee** for registration, pre-registering is **compulsory**. Please email **ieeeaps.madras@gmail.com**, giving your (1) name, (2) position and affiliation, (3) IEEE membership grade and number, (4) contact details, and (5) a statement as to why you want to attend the event. The registration must be received on or before **Thursday, July 30, 2015**. The number of registrations is limited to 60.

For any queries, please contact the event coordinator:

Mr. V. Lingasamy

Email: lingasamyap@gmail.com

## **Abstracts of talks**

### **Periodic Structures and their Applications to Antennas**

This lecture covers the importance of periodic structures and metamaterials in microwave/millimetre wave domain. Initial discussions will be on general periodic structures, conceptual understanding on the leaky wave followed by realization of metamaterials in various waveguide structures. More focus will be on substrate integrated waveguides in the later part of the discussion, including some recent EBG/PBG structures.

### **Development of Educational App with FDTD Simulations on Portable Devices**

A versatile educational toolkit app is developed for transmission line analysis and design on iOS devices. The app realizes various functions including microstrip line analysis and synthesis, calculations of input impedance, reflection coefficient and frequency response in terms of S-parameters. Smith chart tool is also provided to aid in designing microstrip circuits. In addition, a novel multiple 1-D FDTD method is proposed to simulate microstrip circuits incorporated with lumped elements in parallel as well as series connections. Several educational circuit examples are provided to help students gain a better understanding of the electromagnetic wave propagation in the microstrip circuit in a visual way.

## **Speakers' biographies**

**A Alphones** received his B.Tech. from Madras Institute of Technology in 1982, M.Tech. from Indian Institute of Technology Kharagpur in 1984 and Ph.D. degree in Optically Controlled Millimeter wave Circuits from Kyoto Institute of Technology (Japan) in 1992.

He was a JSPS visiting fellow from 1996-97 at Japan. During 1997-2001, he was with Centre for Wireless Communications, National University of Singapore as Senior Member of Technical Staff, involved in the research on optically controlled passive/active devices. Since 2001, he is with Nanyang Technological University and currently he is Professor at the School of Electrical and Electronic Engineering. He is also the Program coordinator for research. He has 30 years of research experience. He has published and presented over 250 technical papers in peer reviewed International Journals/ Conferences. His current interests are electro-magnetic analysis on planar RF circuits and integrated optics, microwave photonics, and metamaterial based leaky wave antennas. He was involved many IEEE flagship conferences held in Singapore and General Chair of APMC 2009, and MWP 2011. He was the IEEE AP/MTT joint chapter chair during 2008-2009 and also been serving in the IEEE Singapore section at various positions and currently the chairman of the section. He is also serving as the member of international steering committee of APMC for the past ten years. He has delivered tutorials and short courses in international conferences. He had written a chapter on "Microwave Measurements and Instrumentation" in Wiley Encyclopedia of Electrical and Electronic Engineering 2002, and a chapter on "Optically Controlled Phased Array Antennas for UWB RFID Reader" in Wiley's Handbook of Smart Antennas and RFID Systems in 2010. He is a Senior Member of IEEE.

**Eng Leong Tan** received the B.Eng. (Electrical) degree with first class honors from the University of Malaya, Malaysia, and the Ph.D. degree in Electrical Engineering from Nanyang Technological University (NTU), Singapore. From 1999 to 2002, he was a Member of Technical Staff at the Institute for Infocomm Research, Singapore, where he also taught a graduate-level course on RF circuit design at National University of Singapore. Since 2002, he has been teaching graduate-/undergraduate-level RF/microwave and electromagnetic courses at the School of Electrical & Electronic Engineering, NTU, where he is currently an Associate Professor. His research interests include computational electromagnetics and acoustics, RF/microwave circuit and antenna design.

He has published more than 100 papers, mostly in international journals and some in conferences. He and many of his students have their papers/projects shortlisted as finalists or won awards/prizes in local, regional and international conferences/contests. These include Best Paper Gold Award Second Prize in 2006 International RF and Microwave Conference, Most Efficient Solution Award in 2007 Engineering Invention 'N' Innovation Challenge, shortlisted for 2008 Asia-Pacific Microwave Conference prize competition, 1st Runner-Up Prize in 2010 IEEE Singapore MTT/AP Chapter Best Student Paper Contest, Finalist of Student Paper Competition in 2011 IEEE AP-S International Symposium on Antennas and Propagation, Best team in Robotics in 2011 Design Innovation Project Competition and Exhibition, Best team in Android Applications in 2012 DIP Competition and Exhibition, First Prize in AP-S Antenna Design Contest, 2013 IEEE AP-S International Symposium on Antennas and Propagation, First Prize in MTT-S Student Design Contest on Apps for MTT, 2014 MTT-S International Microwave Symposium, and First Prize in 2014 IEEE Region 10 Student Paper Contest.

He has been very active in IEEE Singapore MTT/AP Chapter. For many years, he had served as committee member, Treasurer, Secretary, Vice Chair and is currently the Chapter Chair. Under his mentoring, he initiated the formation of AP-S and MTT-S Student Branch Chapters in Singapore. His service commitment and leadership has led the Chapter to win 2013 IEEE AP-S Best Chapter Award, 2013 Best Chapter of the Singapore Section and recently the MTT-S Outstanding Chapter Award at IMS 2014. He is a Senior Member of IEEE and a member of AP-S Education Committee.