



IEEE AP/MTT (Hong Kong Chapter)
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Department of Electronic Engineering



Seminar

Waveguide Filters for Satellites (IEEE MTT Speakers Bureau Prog.)

by

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Date : April 19, 2013 (Friday)

Time : 2:00 P.M.

Venue : Room 222, Ho Sin Hang Engineering Building, CUHK

Abstract

An overview of all-metal waveguide filters for satellite payloads is offered in this talk. Initially, an historical evolution of this filtering technology, including typical electrical and mechanical requirements, is outlined. Next, recent advancements in full-wave analysis methods, automated design procedures, and high power effects modelling of these filters are reviewed. Then, a Computer-Aided Design (CAD) tool based on such techniques (i.e. FEST3D "Full-Wave Electromagnetic Software Tool for 3D Waveguide Components") is introduced, and its practical application to the analysis, design and high power considerations of several examples of satellite filters is presented, including. In particular, direct-coupled rectangular waveguide filters, E-plane waveguide technology, dual-mode filtering prototypes and evanescent mode waveguide filters are considered. Classical topologies, as well as more novel configurations for each filter class, are also discussed during the talk.

Biography of Speaker

Vicente Boria was born in Valencia, Spain, on May 18, 1970. He received the "Ingeniero de Telecomunicación" degree (with first-class honors) and the "Doctor Ingeniero de Telecomunicación" degree from Universidad Politécnica de Valencia, Valencia, Spain, in 1993 and 1997, respectively. In 1993 he joined "Departamento de Comunicaciones", Universidad Politécnica de Valencia, where he is Full Professor (since 2003). In 1995 and 1996, he was holding a Spanish Trainee position with the European Space Research and Technology Centre, European Space Agency (ESTEC-ESA), Noordwijk, The Netherlands, where he was involved in the area of EM analysis and design of passive waveguide devices. In 2006, he co-founded the spin-off company Aurora Software and Testing (www.aurorasat.es) mainly devoted to passive components for high frequency applications and space systems, where he serves as Scientific Advisor. He has authored or co-authored 8 chapters in technical textbooks, 80 papers in refereed international technical journals, and over 150 papers in international conference proceedings. His current research interests are focused on the analysis and automated design of passive components, left-handed and periodic structures, as well as on the simulation and measurement of high power effects in passive waveguide systems. Dr. Boria is Senior member of the IEEE Microwave Theory and Techniques Society, where he is Vice-Chairman of MTT Technical Comm. No. 8 (Filters and Passive Components) for the period 2011-2013, and Associate Editor of IEEE Microwave and Wireless Components Letters since Jan. 2013.

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