Abstracts

High-Frequency Reciprocity Based Circuit Model for the Incidence of Electromagnetic Waves on General Circuits in Layered Media

F. Olyslager. "High-Frequency Reciprocity Based Circuit Model for the Incidence of Electromagnetic Waves on General Circuits in Layered Media." 1996 Transactions on Microwave Theory and Techniques 44.6 (Jun. 1996 [T-MTT]): 862-873.

Traditionally a circuit on a high-speed multichip module (MM) or a microwave monolithic integrated circuit (MMIC) is represented in an equivalent circuit by S-parameters for the different components, such as filters or bends, and by transmission lines for the interconnections between the components. Nowadays the S-parameters of the components are easily determined by a numerical electromagnetic analysis. Different components close to each other will interact, often this interaction is unwanted. In the present contribution we develop a circuit model for these interactions without having to perform a global electromagnetic analysis of the interacting components. These interactions are then represented by discrete and distributed sources in the equivalent circuit. Our technique is based on reciprocity and is focused on the surface wave interaction which is often the most important one. Each component is characterized by a surface wave radiation pattern.

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