Abstracts

An Efficient Numerical Spectral Domain Method to Analyze a Large Class of Nonreciprocal Planar Transmission Lines

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This paper presents an efficient numerical application of the Galerkin method in the spectral domain, (SD), to the analysis of strip-like/slot-like coplanar transmission lines embedded in a bianisotropic multilayered medium. The method is based on the obtaining of the spectral dyadic Green's function by the equivalent boundary method (EBM), a suitable third order extraction technique of the asymptotic behavior of the Green's dyad, an enhanced numerical integration scheme and the use of an adequate contour integral method for searching zeros in the complex plane. This method, namely the SD-EBM, has been found to be very suitable to analyse transmission lines with semiconductor and/or ferrites magnetised at an arbitrary direction, including the study of magnetostatic wave propagation phenomena.

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