Abstracts

A quasi-one-dimensional integration technique for the analysis of planar microstrip circuits via MPIE/MoM

L. Tarricone, M. Mongiardo and F. Cervelli. "A quasi-one-dimensional integration technique for the analysis of planar microstrip circuits via MPIE/MoM." 2001 Transactions on Microwave Theory and Techniques 49.3 (Mar. 2001 [T-MTT]): 517-523.

The mixed-potential integral-equation approach, using spatial-domain closed-form Green's functions, and discretized with the method-of-moments, is a state-of-the-art method for the analysis of planar microstrip circuits. One of its most time-demanding tasks is the evaluation of the impedance matrix terms, which typically requires the numerical computation of two-dimensional integrals. A method based on suitable changes of coordinates and domains is introduced in this paper in order to reduce such integrals to a quasi-one-dimensional numerical integration, with a substantial enhancement in the efficiency of the analysis, without affecting the accuracy of the approach. Results are given demonstrating, for practical accuracy values, an improvement of typically one order of magnitude in simulation times.

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