Abstracts

Efficient use of closed-form Green's functions for the analysis of planar geometries with vertical connections

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An efficient and rigorous method for the analysis of planarly layered geometries with vertical metallizations is presented. The method is based on the use of the closed-form spatial-domain Green's functions in conjunction with the method of moments (MoM). It has already been demonstrated that the introduction of the closed-form Green's functions into the MoM formulation results in significant computational improvement for the analysis of planar geometries. However, in cases of vertical metallizations, such as shorting pin's, via holes, etc., there are some difficulties in incorporating the closed-form Green's functions into the MoM formulation. In this paper, these difficulties are discussed and their remedies are proposed. The proposed approach is compared to traditional approaches from a theoretical point of view, and the numerical implementation is demonstrated through some examples. The results are also compared to those obtained from the commercial software em by SONNET.

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