Abstracts

Electromagnetic modeling of composite metallic and dielectric structures

B.M. Kolundzija. "Electromagnetic modeling of composite metallic and dielectric structures." 1999 Transactions on Microwave Theory and Techniques 47.7 (Jul. 1999, Part I [T-MTT]): 1021-1032.

A new, general, and very efficient method for analysis of arbitrary composite metallic and dielectric structures, based on the PMCHW formulation and Galerkin method, is presented in this paper. Flexible geometrical modeling is performed by isoparametric surfaces (i.e., by bilinear surfaces in the particular case). Efficient approximation of currents is achieved by using polynomial entire-domain expansions (i.e., rooftop subdomain expansions in the particular case) that automatically satisfy the continuity equation, assuming that there are no line charges along surface edges. Special care is devoted to the treatment of arbitrary multiple metallic and/or dielectric junctions. Numerical results for different structures, obtained by using an extremely small numbers of unknowns, show very good agreement with other available data.

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