Abstracts

Efficient phenomenologically-based 1-D evaluation of the impedance matrix in a MPIE analysis of planar microstrip circuits

F. Cervelli, M. Mongiardo and L. Tarricone. "Efficient phenomenologically-based 1-D evaluation of the impedance matrix in a MPIE analysis of planar microstrip circuits." 1998 MTT-S International Microwave Symposium Digest 98.3 (1998 Vol. III [MWSYM]): 1735-1738.

The analysis of microstrip circuits via integral equation techniques has proven as the most efficient, and yet rigorous and full-wave, approach. Nonetheless, the latter requires the evaluation of the impedance matrix which elements, in turn, are generally obtained after a two-dimensional numerical integration. We introduce a coordinate transformation allowing to reduce for the mixed potential integral equation, the numerical integration to a one-dimensional case. Moreover, by using the spatial domain closed-form of the Green's function and by phenomenologically separating the relevant contributions, we demonstrate that a significant reduction of computer times is indeed feasible and achievable.

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