Abstracts

New Procedures for 2-D and 3-D Microwave Circuit Analysis with the TLM Method

Eswarappa, P.P.M. So and W.J.R. Hoefer. "New Procedures for 2-D and 3-D Microwave Circuit Analysis with the TLM Method." 1990 MTT-S International Microwave Symposium Digest 90.2 (1990 Vol. II [MWSYM]): 661-664.

This paper contains four original contributions to numerical field modeling with the TLM method: 1. The formulation of a 3-D "Johns Matrix" (or Numerical Green's Function) for wideband non-TEM absorbing boundary conditions using the 3-D Condensed TLM node. 2. Use of tapered "Johns Matrix" (or Numerical Green's Function) for the improvement of the return low of frequency dispersive absorbing boundaries. 3. A recursive algorithm for wideband non-TEM absorbing boundary modeling. 4. A pseudo-parallel iteration scheme for the simultaneous processing of TLM substructures. These procedures are essential for efficient time domain modeling of 3-D waveguide discontinuities of arbitrary geometries. Their application saves considerable computer run time and memory when compared with conventional TLM analysis.

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