# Abstracts

## Generalized TLM Algorithms with Controlled Stability Margin and Their Equivalence with Finite-Difference Formulations for Modified Grids

*M. Celuch-Marcysiak and W.K. Gwarek. "Generalized TLM Algorithms with Controlled Stability Margin and Their Equivalence with Finite-Difference Formulations for Modified Grids." 1995 Transactions on Microwave Theory and Techniques 43.9 (Sep. 1995, Part I [T-MTT]): 2081-2089.*

Generalized TLM formulations based on modified grids of 2-D shunt nodes or 3-D expanded nodes are proposed. Generalization consists of permitting flexible control of the numerical stability margin (and thus a time-step for a particular discretization), and of introducing enhanced models for curved boundaries. Formal equivalence between generalized TLM and FDTD algorithms based on the same grids is proved. Simple rules for transforming circuit models (from TLM to FDTD and vice versa) and for their equivalent excitation are given. It is demonstrated that the application of the generalized algorithm reduces computer resources required for the TLM analysis of a circular waveguide by an order of magnitude.

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