Abstracts

An Improved FD--TD Full Wave Analysis for Arbitrary Guiding Structures Using a Two-Dimensional Mesh

F. Arndt, V.J. Brankovic and D.V. Krupezevic. "An Improved FD--TD Full Wave Analysis for Arbitrary Guiding Structures Using a Two-Dimensional Mesh." 1992 MTT-S International Microwave Symposium Digest 92.1 (1992 Vol. I [MWSYM]): 389-392.

A new finite-difference time-domain (FD-TD) formulation is proposed for the efficient analysis of arbitrary waveguiding structures. In contrast to the conventional FD-TD eigenvalue formulation, which requires a three--dimensional mesh for adequately formed resonator sections, this method utilizes advantageously a two--dimensional mesh for analyzing the full-wave dispersive characteristic of guided structures. This leads to a significant reduction in cpu time and storage requirements. Numerical examples are presented for bi- and unilateral finlines with finite metallization thickness and for a pair of coupled shielded dielectric guides. The theory is verified by comparison with results obtained by other methods.

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