# Abstracts

## Partially prism-gridded FDTD analysis for layered structures of transversely curved boundary (Mar. 2000 [T-MTT])

*Chieh-Tsao Hwan, Shau-Gang Mao, Ruey-Beei Wu and Chun-Hsiung Chen. "Partially prism-gridded FDTD analysis for layered structures of transversely curved boundary." 2000 Transactions on Microwave Theory and Techniques 48.3 (Mar. 2000 [T-MTT]): 339-346.*

In this paper, a partially prism-gridded finite-difference time-domain (FDTD) method is proposed for the analysis of practical microwave and millimeter-wave planar circuits. The method is featured by hybridizing the flexible prism-based finite-element method to handle the region near the curved metallization boundary and the efficient rectangular-gridded FDTD method for most of the regular region. It can be used to deal with shielded or unshielded planar components such as patch antennas, filters, resonators, couplers, dividers, vias, and various transitions between planar transmission lines. Although only representative structures, e.g., grounded via, through hole via, and coplanar waveguide to coplanar stripline transition, are analyzed in this paper, the underlined formulation is applicable to layered structures with arbitrary curved boundary in the transverse direction. The accuracy of this method is verified by comparing the calculated results with those by other methods. Also, by the analysis of computational complexity, the present method is shown to be as efficient as the conventional FDTD method, with negligible overhead in memory and computation time for handling the curved boundary.

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