Abstracts

Full-Wave Analysis of Guided Wave Structures Using a Novel 2-D FDTD

S. Xiao, R. Vahldieck and H. Jin. "Full-Wave Analysis of Guided Wave Structures Using a Novel 2-D FDTD." 1992 Microwave and Guided Wave Letters 2.5 (May 1992 [MGWL]): 165-167.

A two-dimensional Yee's mesh with reduced grid size is proposed for the full-wave analysis of arbitrarily shaped guided wave structures. By introducing a phase shift beta delta h along the z-direction (propagation direction), it is now possible to calculate the propagation constant of hybrid modes by using only a two-dimensional mesh. This step not only allows the frequency selective application of the finite difference time-domain (FDTD) method, as desired in many design problems, but it also reduces the memory space and CPU time of the full-wave FDTD significantly. Furthermore, by introducing a phase shift, the size of the space grid in propagation direction is reduced to half its normal size.

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