Abstracts

An Efficient 2-D FDTD Algorithm Using Real Variables

S. Xiao and R. Vahldieck. "An Efficient 2-D FDTD Algorithm Using Real Variables." 1993 Microwave and Guided Wave Letters 3.5 (May 1993 [MGWL]): 127-129.

A two-dimensional finite difference time domain (FDTD) method is proposed for the full-wave analysis of arbitrarily shaped guided wave structures. By using a phase shift beta Delta z along the z-direction (propagation direction), and assume the limiting case of Delta z approaching zero, the propagation constant of hybrid modes can be calculated by using a two-dimensional mesh with a truly two-dimensional grid size. Furthermore, by multiplying the field equation with an additional factor j, only real variables are used in the computation, leading to a very fast algorithm.

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