Abstracts

Unconditionally stable FDTD algorithm for solving three-dimensional Maxwell's equations

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We previously introduced an unconditionally stable FDTD algorithm for a two-dimensional TE wave. This algorithm is based on the alternating-direction implicit (ADI) method, so we have called this new algorithm the ADI-FDTD method. We analytically and numerically verified that the algorithm of this method is free from the Courant-Friedrich-Levy condition restraint. In this paper, we extend this approach to a full three-dimensional wave. Numerical formulations are presented and simulation results are compared to those using the conventional FDTD method.

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