Abstracts

Split-field and anisotropic-medium PML-FDTD implementations for inhomogeneous media

F.L. Teixeira, C.D. Moss, W.C. Chew and J.A. Kong. "Split-field and anisotropic-medium PML-FDTD implementations for inhomogeneous media." 2002 Transactions on Microwave Theory and Techniques 50.1 (Jan. 2002, Part I [T-MTT] (Mini-Special Issue on 1999 International Microwave and Optoelectronics Conference (IMOC'99))): 30-35.

In this paper, we present three-dimensional finite-difference time-domain (FDTD) algorithms for transient simulation of electromagnetic-wave propagation in arbitrary inhomogeneous media, which incorporate the perfectly matched layer (PML) absorbing boundary condition. We discuss the choice of constitutive parameters inside the PML layers to match the interior inhomogeneous media for planar interfaces and corner regions. We illustrate the method using both a split-fleld PML-FDTD formulation in Cartesian coordinates and an anisotropic medium (unsplit) PML-FDTD formulation in cylindrical coordinates.

❑ Return to main document.