Abstracts

Application of a hyperbolic grid generation technique to a conformal PML implementation

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Recently proposed anisotropic material-based conformal perfectly matched layer (PML) formulations are based on general orthogonal curvilinear coordinates and, consequently, their practical application to a conformal finite-difference time-domain (FDTD) method requires body-conformal orthogonal grids. In this work, we present an application of a two-dimensional (2-D) hyperbolic grid generation scheme for a numerical implementation of a conformal PML in conjunction with Janaswamy and Liu's FDTD method. Numerical results show that our hyperbolic grid-based conformal PML implementation provides an efficient absorbing boundary condition (ABC) for a body-conformal FDTD simulation involving complex geometries.

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