Abstracts

A frequency-dependent PSTD algorithm for general dispersive media

Qing Huo Liu and Guo-Xin Fan. "A frequency-dependent PSTD algorithm for general dispersive media." 1999 Microwave and Guided Wave Letters 9.2 (Feb. 1999 [MGWL]): 51-53.

Based on the Fourier representation of spatial derivatives, the recursive convolution approaches, and the perfectly matched layer (PML), we develop a pseudospectral time-domain (PSTD) algorithm for electromagnetic problems involving general dispersive media. As a result of the accurate representation of spatial derivatives, the PSTD algorithm for dispersive media requires only a small number of cells per minimum wavelength, significantly reducing the number unknowns. Multidimensional numerical results confirm efficacy of the PSTD algorithm for large-scale inhomogeneous media.

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