Abstracts

Frequency Dependence of the Constitutive Parameters of Causal Perfectly Matched Anisotropic Absorbers

M. Kuzuoglu and R. Mittra. "Frequency Dependence of the Constitutive Parameters of Causal Perfectly Matched Anisotropic Absorbers." 1996 Microwave and Guided Wave Letters 6.12 (Dec. 1996 [MGWL]): 447-449.

Perfectly matched layers (PML's), which are employed for mesh truncation in the finite-difference time-domain (FDTD) or in finite element methods (FEM's), can be realized by artificial anisotropic materials with properly chosen permittivity and permeability tensors. The tensor constitutive parameters must satisfy the Kramers-Kronig relationships, so that the law of causality holds. These relations are used to relate the real and imaginary parts of the constitutive parameters of the PML media to deduce the asymptotic behaviors of these parameters at low and high frequencies.

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