Abstracts

GT-PML: Generalized Theory of Perfectly Matched Layers and its Application to the Reflectionless Truncation of Finite-Difference Time-Domain Grids (Dec. 1996, Part II [T-MTT])

L. Zhao and A.C. Cangellaris. "GT-PML: Generalized Theory of Perfectly Matched Layers and its Application to the Reflectionless Truncation of Finite-Difference Time-Domain Grids (Dec. 1996, Part II [T-MTT])." 1996 Transactions on Microwave Theory and Techniques 44.12 (Dec. 1996, Part II [T-MTT] (1996 Symposium Issue)): 2555-2563.

A new mathematical formulation is presented for the systematic development of perfectly matched layers from Maxwell's equations in properly constructed anisotropic media. The proposed formulation has an important advantage over the original Berenger's perfectly matched layer in that it can be implemented in the time domain without any splitting of the fields. The details of the numerical implementation of the proposed perfectly matched absorbers in the context of the finite-difference time-domain approximation of Maxwell's equations are given. Results from three-dimension (3-D) simulations are used to illustrate the effectiveness of the media constructed using the proposed approach as absorbers for numerical grid truncation.

❑ Return to main document.