Abstracts

An Efficient Implementation of Berenger's Perfectly Matched Layer (PML) for Finite-Difference Time-Domain Mesh Truncation

J.C. Veihl and R. Mittra. "An Efficient Implementation of Berenger's Perfectly Matched Layer (PML) for Finite-Difference Time-Domain Mesh Truncation." 1996 Microwave and Guided Wave Letters 6.2 (Feb. 1996 [MGWL]): 94-96.

In this letter, an efficient three-dimensional (3-D) implementation of the perfectly matched layer (PML) type of absorbing medium is presented. The technique combines a new eight-unknown time domain formulation in regions in which there is only one nonzero conductivity with the original 12-unknown formulation in the edge and corner regions where nonzero conductivities overlap. Numerical examples of radiation and guided wave problems are included to demonstrate that the modified formulation provides accuracy comparable to the original split field formulation while substantially reducing the memory and CPU requirements of the PML regions.

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