Abstracts

Perfectly Matched Absorbing Boundary Conditions Based on Anisotropic Lossy Mapping of Space

C.M. Rappaport. "Perfectly Matched Absorbing Boundary Conditions Based on Anisotropic Lossy Mapping of Space." 1995 Microwave and Guided Wave Letters 5.3 (Mar. 1995 [MGWL]): 90-92.

An absorbing boundary condition (ABC), based on the PML ABC of Berenger, used in the frequency domain to terminate the computational grid in electromagnetic scattering simulations is presented. Making use of an impedance-matched lossy layer, with directionally-dependent electric and magnetic conductivity, this ABC is independent of frequency and almost independent of incident angle. Thus it can be placed very close to a scatterer, minimizing the usual buffer of required, uninteresting computational space, and so reduce computer storage and CPU time. With this novel formulation, the ABC can be specified in three dimensions in almost the same manner as the standard FDFD equations, with only a small percentage of increased software overhead.

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