Abstracts

An artificially-synthesized absorbing medium for the truncation of FDTD lattices

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An artificially-synthesized absorbing material composed of a doubly-periodic array of lossy electric and magnetic media (i.e., an /spl epsiv/ and /spl mu/ checkerboard) is presented for the truncation of Finite-Difference Time-Domain (FDTD) lattices in waveguide simulations. It is shown numerically that this artificially-synthesized material exhibits excellent absorption properties when used in waveguide simulations. However, unlike the Perfectly Matched Layer (PML) absorbing medium, the artificially-synthesized medium presented in this here does not require any modification of the standard FDTD formulation. Numerical examples demonstrate that the FDTD implementation of the artificially-synthesized absorbing medium is stable as well as computationally efficient.

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