# Abstracts

## Generalized-material-independent PML absorbers used for the FDTD simulation of electromagnetic waves in 3-D arbitrary anisotropic dielectric and magnetic media

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By introducing the material-independent quantities (electric displacement D and flux density B) into the finite-difference time-domain (FDTD) model, a generalized-material-independent perfectly matched layer (GMIPML) absorber used to absorb electromagnetic waves propagating in three-dimensional (3-D) general anisotropic dielectric and magnetic media is proposed. Within the proposed GMIPML absorber, D and B are directly absorbed, whereas E and H are simultaneously absorbed through the relations between E and D, as well as H and B. It is shown that with the help of this GMIPML absorber, Berenger's perfectly matched layer (PML) absorbing boundary condition (ABC) can be simply and effectively extended to 3-D arbitrary anisotropic materials consisting of both arbitrary permittivity and permeability tensors.

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