Abstracts

Multiple Region FDTD (MR/FDTD) and its Application to Microwave Analysis and Modeling

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Multiple Region FDTD (MR/FDTD), an extension of classical FDTD to multiple sub-regions within a problem domain, is introduced. In MR/FDTD the problem domain is broken into several independent FDTD sub-region lattices. The sub-region lattices are terminated using a single surface integral radiation boundary condition applied simultaneously to all sub-regions providing mutual interaction between the sub-regions. The advantages of MR/FDTD for sparse modeling problems include computational and memory efficiencies that result from confining the FDTD lattices to the space near objects and the ability to use different lattices and/or lattice orientations within each sub-region. MR/FDTD also eliminates the need for local absorbing boundary conditions.

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