Abstracts

Coupling front tracking and wavelet techniques for fast time domain simulations

The main attractive feature of wavelet-based, time-domain techniques is the simple implementation of adaptive meshing, through the application of a thresholding procedure to eliminate wavelet coefficients that attain relatively insignificant values, at a limited compromise of accuracy. However, little attention has been devoted so far to the investigation of computational costs and accuracy trade-offs in order to obtain thresholding-related operation savings. This paper presents an efficient implementation of thresholding applied to a non-linear problem and reports significant execution time savings compared to the conventional FDTD technique, that the application of the proposed method has led to.

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