Abstracts

A Novel Wavelet Based Time Domain Simulation Approach

M. Werthen and I. Wolff. "A Novel Wavelet Based Time Domain Simulation Approach." 1996 Microwave and Guided Wave Letters 6.12 (Dec. 1996 [MGWL]): 438-440.

A novel time domain simulation approach for analyzing three-dimensional (3-D) passive microwave structures is presented. The electromagnetic fields of the structure under investigation are expanded into a hierarchical system of wavelets and scaling functions for all three dimensions leading to a stable, multiscale algorithm. By neglecting small wavelet coefficients and thereby reducing the computational effort, this method is equivalent to a finite difference scheme with a time dynamic space adaptive grid. A brief overview of the main ideas and advantages of the new method as well as the results of two numerical examples are given.

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