Abstracts

A Method for Incorporating Different Sized Cells into the Finite-Difference Time-Domain Analysis Technique

D.T. Prescott and N.V. Shuley. "A Method for Incorporating Different Sized Cells into the Finite-Difference Time-Domain Analysis Technique." 1992 Microwave and Guided Wave Letters 2.11 (Nov. 1992 [MGWL]): 434-436.

A method is presented that simplifies the process of incorporating a refined mesh around a discontinuity in a finite-difference time-domain algorithm. The technique is used to calculate the tangential electric fields on the boundaries between different sized cells in a variable step size mesh environment. A waveguide is modeled in two dimensions and the accuracy of the mesh refinement algorithm is tested by measuring the amount of field reflected during the transition from a coarse mesh to a fine mesh. The amount of error is found to be less than 1%.

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