Abstracts

A perfectly matched layer for the 3-D wave equation in the time domain

Y. Rickard, N. Georgieva and Wei-Ping Huang. "A perfectly matched layer for the 3-D wave equation in the time domain." 2002 Microwave and Wireless Components Letters 12.5 (May 2002 [MWCL]): 181-183.

In this paper, a three-dimensional (3-D) PML for the 3-D scalar wave equation is proposed for applications in practical finite difference time-domain schemes such as the time-domain wave-potential (TDWP) technique and the time-domain scalar wave equation approaches to the analysis of optical waveguides. The theoretical formulation is based on the stretched coordinates approach. It is shown that this PML is suitable for the termination of open problems as well as for port terminations in high-frequency circuit problems. New PML conductivity profile is proposed, which offers lower reflections in a wider frequency band in comparison with the commonly used profiles.

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