Abstracts

Fast modal ABC's in the hybrid PEE-FDTD analysis of waveguide discontinuities

A. Kreczkowski, T. Rutkowski and M. Mrozowski. "Fast modal ABC's in the hybrid PEE-FDTD analysis of waveguide discontinuities." 1999 Microwave and Guided Wave Letters 9.5 (May 1999 [MGWL]): 186-188.

The authors discuss the application of two types of fast modal absorbing boundary conditions (ABC's) to the analysis of waveguide discontinuities by means of the hybrid partial eigen-function expansion finite-difference time-domain (PEE-FDTD) method. For low-order modes, ARX digital filters are used while higher order modes are terminated with simplified ABC's based on the evanescent nature of modes below cutoff. Numerical tests show that this approach gives a very good absorption of modes while allowing one to achieve significant acceleration of numerical computation compared to classical FDTD scheme.

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