Abstracts

Time-domain simulation of electromagnetic field using a symplectic integrator

T. Hirono, W.W. Lui and K. Yokoyama. "Time-domain simulation of electromagnetic field using a symplectic integrator." 1997 Microwave and Guided Wave Letters 7.9 (Sep. 1997 [MGWL]): 279-281.

A new high-order-accurate method for time-domain simulation of a electromagnetic field is proposed. This method is analogous to the one used in classical mechanics for continuous system analysis. The symplectic integrator in classical mechanics is utilized to calculate the time dependence of the field. Using the same grid spacing and time step, it is demonstrated that the proposed method is more accurate than the conventional finite-difference time-domain (FDTD) method for a two-dimensional problem. This method is also applicable to full-vectorial Maxwell's equations in three dimensions.

❑ Return to main document.