Abstracts

Time Domain Modeling of Impedance Boundary Condition (Short Papers)

A methodology developed to handle dispersive materials in the time domain is extended to model the dispersive characteristics of the impedance boundary condition used for a thin layer coating over perfect conductors. The impedance boundary condition is first approximated as a rational function of frequency. This rational function is then transformed to a time domain equation, resulting in a partial differential equation in space and time. Discretization of the time domain model to efficiently handle the thin layer coating is presented in the context of the finite-difference time-domain (FD-TD) technique. The methodology is verified by solving a one-dimensional problem using the FD-TD technique and comparing with the analytical results.

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