Abstracts

Stability Condition for the Explicit Algorithms of the Time Domain Analysis of Maxwell's Equations

M. Mrozowski. "Stability Condition for the Explicit Algorithms of the Time Domain Analysis of Maxwell's Equations." 1994 Microwave and Guided Wave Letters 4.8 (Aug. 1994 [MGWL]): 279-281.

This letter presents the derivation of the stability condition for various types of time domain algorithms used in the solution of linear hyperbolic differential equations that arise in the investigation of transient electromagnetic fields. The stability condition of the algorithm is derived by investigating the properties of operators in suitably defined Hilbert spaces. Compared to the classical von Neumann stability analysis, the functional analysis approach gives more general results that can be easily applied to some recent and possible future time domain schemes.

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