Abstracts

A modified Lanczos algorithm for the computation of transient electromagnetic wavefields

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A new method for computing transient electromagnetic wavefields in inhomogeneous and lossy media is presented. The method utilizes a modified Lanczos scheme, where a so-called reduced model is constructed. A discretization of the time variable is then superfluous. This reduced model represents the transient electromagnetic wavefield on a certain bounded interval in time. Some theoretical aspects of the method are highlighted and numerical results showing the performance of the method for two-dimensional (2-D) configurations are given. Also, comparisons between this Lanczos method and the finite-difference time-domain (FDTD) method are made.

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