Abstracts

A Resetting Algorithm for Transient Analysis of Coupled Transmission Line Circuits

L. Lu, M.S. Nakhla and Q.-J. Zhang. "A Resetting Algorithm for Transient Analysis of Coupled Transmission Line Circuits." 1994 Transactions on Microwave Theory and Techniques 42.3 (Mar. 1994 [T-MTT]): 494-500.

The numerical inversion of Laplace transform has been used as an important tool for time domain analysis of high speed VLSI interconnects modeled by transmission line networks. In this paper, a resetting algorithm based on the numerical inversion of Laplace transform with Pade approximation is described. The initial conditions of coupled transmission lines required by the resetting algorithm are also derived. The new method results in substantial improvement of the accuracy of the numerical inversion of Laplace transform for solving transmission line networks with long transients. The new method also bridges the gap between two types of circuit simulation techniques, i.e., the numerical inversion of Laplace transform and the numerical integrations.

❑ Return to main document.