Abstracts

An improved extended FDTD formulation for active microwave circuits

V.S. Reddy and R. Garg. "An improved extended FDTD formulation for active microwave circuits." 1999 Transactions on Microwave Theory and Techniques 47.9 (Sep. 1999, Part I [T-MTT]): 1603-1608.

An improved extended finite-difference time-domain formulation for the analysis of active linear and nonlinear microwave circuits is presented in this paper. Here, we have selected the current source approach and have tried to update all the electric-field components on the active sheet. Central-difference approximation has been used for the discretization of the resultant set of state equations. The equivalent circuit of the device has been treated as a zero-dimensional circuit with respect to the wave propagation. The results based on this formulation show good agreement with analytically obtained data for circuits like amplifiers and oscillators.

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