Abstracts

Improvements of the Two-Dimensional FDTD Method for the Simulation of Normal- and Superconducting Planar Waveguides Using Time Series Analysis (Short Papers)

S. Hofschen and I. Wolff. "Improvements of the Two-Dimensional FDTD Method for the Simulation of Normal- and Superconducting Planar Waveguides Using Time Series Analysis (Short Papers)." 1996 Transactions on Microwave Theory and Techniques 44.8 (Aug. 1996 [T-MTT]): 1487-1490.

Time-domain simulation results of two-dimensional (2-D) planar waveguide finite-difference time-domain (FDTD) analysis are normally analyzed using Fourier transform. The introduced method of time series analysis to extract propagation and attenuation constants reduces the desired computation time drastically. Additionally, a nonequidistant discretization together with an adequate excitation technique is used to reduce the number of spatial grid points. Therefore, it is possible to simulate normal- and superconducting planar waveguide structures with very thin conductors and small dimensions, as they are used in MMIC technology. The simulation results are compared with measurements and show good agreement.

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