Abstracts

Global finite element time domain analysis of active non-linear microwave circuits

Sung-Hsien Chang, R. Coccioli, Yongxi Qian, Hong-bae Lee and T. Itoh. "Global finite element time domain analysis of active non-linear microwave circuits." 1999 MTT-S International Microwave Symposium Digest 99.4 (1999 Vol. IV [MWSYM]): 1479-1482 vol.4.

This paper proposes an extension of Finite Element Time Domain (FETD) method for the global electromagnetic analysis of complex active microwave circuits. The equivalent current sources and capacitances of the distributed part of the circuit, derived from FETD analysis, are incorporated into state equations to solve the lumped element part of the circuit. Benchmark tests on a microwave amplifier and self-oscillating mixer indicate that this extended FETD is not only superior in mesh flexibility but also gives much better results than a simulated FDTD-based algorithm.

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