

Abstracts

Harmonic balance analysis for systems with circuit-field iterations

C.E. Christoffersen, M.B. Steer and M.A. Summers. "Harmonic balance analysis for systems with circuit-field iterations." 1998 MTT-S International Microwave Symposium Digest 98.2 (1998 Vol. II [MWSYM]): 1131-1134.

A state variable implementation of harmonic balance circuit analysis for spatially distributed systems is developed. The equations are formulated with the minimum number of unknowns and error functions starting from the modified nodal admittance matrix of the linear part of the circuit. The program uses advanced numerical techniques, such as automatic differentiation to calculate the Jacobian of the system and it is compatible with port-based network descriptions which occur with electromagnetic modeling.

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