Abstracts

Extraction of the Parameters of Equivalent Circuits of Microwave Transistors Using Tree Annealing

G.L. Bilbro, M.B. Steer, R.J. Trew, C.-R. Chang and S.G. Skaggs. "Extraction of the Parameters of Equivalent Circuits of Microwave Transistors Using Tree Annealing." 1990 Transactions on Microwave Theory and Techniques 38.11 (Nov. 1990 [T-MTT]): 1711-1718.

The problem of extracting a physically based equivalent circuit model for a HBT transistor from S-parameter measurements is solved with a new formulation of simulated annealing. The physical model necessary for an accurate representation of the HBT leads to an extraction problem with many local minima. A satisfactory minimum can be found by conventional gradient-based techniques only with considerable expert guidance. The proposed algorithm finds equivalent circuits as good as those from conventional techniques but without human intervention. It is more efficient than the conventional stochastic simulated annealing because it accumulates a probability density of good equivalent circuits which it subsequently uses to refine its statistical search for the best equivalent circuit.

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