Abstracts

Efficient Simulation of Millimeter-Wave IMPATT Oscillators by FATE, a Combined Time- and Frequency-Domain Method

T. Goeller, M. Schwab and P. Russer. "Efficient Simulation of Millimeter-Wave IMPATT Oscillators by FATE, a Combined Time- and Frequency-Domain Method." 1991 Microwave and Guided Wave Letters 1.11 (Nov. 1991 [MGWL]): 343-345.

The FATE method for the determination of the periodic steady state in oscillators proposed recently is shown to be ideally suited for the simulation of oscillators with strongly nonlinear active devices, e.g., IMPATT oscillators. Simulations of a waveguide oscillator illustrate the choice of a favorable network partition and the advantage of the bandwidth-unlimited time-domain simulation of the nonlinear subnetwork. A V-band hybrid-integrated IMPATT oscillator is simulated with agreement in output power within 4 dB over the dc current range from 100 mA to 220 mA compared to the measured levels and a time-domain simulation.

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