Abstracts

A unified approach for the linear and nonlinear stability analysis of microwave circuits using commercially available tools (Dec. 1999 [T-MTT])

S. Mons, J.-C. Nallatamby, R. Quere, P. Savary and J. Obregon. "A unified approach for the linear and nonlinear stability analysis of microwave circuits using commercially available tools (Dec. 1999 [T-MTT])." 1999 Transactions on Microwave Theory and Techniques 47.12 (Dec. 1999 [T-MTT] (Special Issue on 1999 International Microwave Symposium)): 2403-2409.

For the first time, an exhaustive linear and nonlinear stability analysis of multitransistors monolithic-microwave integrated-circuit (MMIC) circuits is presented. A key point of the proposed stability analysis lies in that it can be easily implemented on any computer-aided design (CAD) software. The presented approach allows both linear and nonlinear stability analysis of any complex circuit fed by small or large signals. Two examples are given that demonstrate the accuracy of the method. The first example concerns a MMIC HBT power amplifier, which exhibited division frequency phenomena and spurious oscillations that were detected by simulations and confirmed by measurements. The second example deals with a voltage-controlled oscillator and demonstrates that the method can also predict spurious oscillations in autonomous circuits.

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