Abstracts

On the Use of Describing Functions in the Study of Nonlinear Active Microwave Circuits

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It is shown that a nonlinear microwave circuit can easily be represented by a feedback model. This formalistic identity with nonlinear control systems suggests that methods and results can be borrowed from nonlinear control theory. The describing function technique, a concept that has been developed to a high degree of sophistication in control theory, is applied to the problem of phase-locking of microwave oscillators. The use of describing functions in the study of nonlinear microwave circuits may give a simple conceptual understanding of locking phenomena, for example, and thereby reduce computational efforts.

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