Abstracts

Period doubling route to chaos in SiGe IMPATT diodes

A. Suarez, A. Mediavilla and J.F. Luy. "Period doubling route to chaos in SiGe IMPATT diodes." 1998 Microwave and Guided Wave Letters 8.4 (Apr. 1998 [MGWL]): 170-172.

An instantaneous electric model for a SiGe IMPATT diode is calculated here from the physical quantities provided by the foundry. The model is used for the nonlinear simulation of IMPATT-based circuits, which are prone to instability. In this work, a bifurcation analysis is carried out in order to determine their dynamical response, as a function of any suitable parameter. The technique has been applied to the equivalent circuit of the reflection measurement system, from which the IMPATT immittance variation curves are usually determined. The bifurcation analysis allowed the detection of a period doubling route to chaos, in good agreement with the experimental observations.

❑ Return to main document.