Abstracts

Nonlinear Mixer Gain Calculations for Josephson Junctions (Short Papers)

H. How, T.-M. Fang, C. Vittoria and A. Widom. "Nonlinear Mixer Gain Calculations for Josephson Junctions (Short Papers)." 1995 Transactions on Microwave Theory and Techniques 43.1 (Jan. 1995 [T-MTT]): 216-218.

We have numerically solved the steady-state solutions of the initial value problem associated with a current-driven Josephson weak-link junction shunted by an Ohmic resistance. The nonlinear mixing action of the junction leads to Shapiro steps in the dc response with step height in units of the mixing frequency. Mixer gains have been calculated with a wide range of parameter values and intrinsic chaos are observed whenever Shapiro steps are prevalent.

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