

عنوان مقاله:

Using FPK Equation to Analyze Nonlinear Behavior of Some Oscillators under Random Forcing Function

محل انتشار:

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نویسندگان:

Asnafi - Department of Mechanical Engineering, School of Engineering, Shiraz University, Shiraz, Iran

Mahzoon - Department of Mechanical Engineering, School of Engineering, Shiraz University, Shiraz, Iran

خلاصه مقاله:

Due to its analytical characteristics, FPK method is a powerful method for analyzing stochastic systems. General solution for FPK equation in nonstationary form is not available but for stationary case and under certain restrictions, analytical solutions for probability density function of some nonlinear equations have been studied in the literature [3, 5, 6, 8, 9, and 12]. In this paper, besides deriving analytical expressions for probability density function of some nonlinear oscillators, their qualitative behaviors are presented and in analogy with cases with deterministic excitation nonlinear features such as bifurcation and limit cycles are studied. The excitations of oscillators in this paper are external, parametric or mixed and in the form of Gaussian white noise.

کلمات کلیدی:

nonlinear behavior, FPK equation, random vibration

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