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## Sensitivity analysis of the nonlinear systems with stochastic forced limit cycles

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**ABSTRACT**

The problem of periodic motions sensitivity of stochastically forced nonlinear systems is considered. The sensitivity analysis on the base of the quasipotential function is used. Some quasipotential approximations given by scalar functions - sensitivity functions - are introduced. These sensitivity functions are a simple tool of a quantitative description for nonlinear systems response on the external disturbances. The examples of prediction of singular responses to stochastic disturbances are presented.

**Keywords:** *Sensitivity analysis, quasipotential, limit cycles, stochastic disturbances*

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