Nonlinear Sciences > Chaotic Dynamics

Chaotic instantons and enhancement of tunneling in kicked double-well system with time-reversal symmetry

V.I. Kuvshinov, A.V. Kuzmin, V.A. Piatrou

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Chaotic instanton approach is used to describe dynamical tunneling in kicked double well system. Effective Hamiltonian for the kicked system is obtained using matrix expansion formula for operator exponent and exploited to construct an approximation for chaotic instanton solution. This approximation is used for derivation of the ground quasienergy splitting dependence on both the perturbation strength and frequency. Results of numerical calculations for corresponding ground quasienergy splitting dependencies based on Floquet theory are in good agreement with the derived analytical formula in a wide range of perturbation parameters.

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