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Random perturbations of invariant Lagrangian tori of Hamiltonian vector fields. (English. Russian original) [Zbl 0952.37013](#)

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The authors consider diffusion type random perturbations of Hamiltonian systems (possibly nonintegrable) having invariant Lagrangian tori (i.e. the form $dp \wedge dq$ vanishes there) with quasiperiodic motion on them. They consider the corresponding small parameter parabolic problem for distributions with the initial condition $\delta_{\Lambda, d\mu}$ where $(\delta_{\Lambda, d\mu}\psi(x)) = \int_{\Lambda} \psi d\mu$ and Λ is the corresponding torus. Applying Maslov's theory of complex germs the authors obtain the leading term of the asymptotics of the solution of the above problem which is completely determined by the torus Λ .

Reviewer: [Yu.Kifer \(Jerusalem\)](#)

MSC:

- [37J25](#) Stability problems for finite-dimensional Hamiltonian and Lagrangian systems
- [60H10](#) Stochastic ordinary differential equations (aspects of stochastic analysis)
- [58J37](#) Perturbations of PDEs on manifolds; asymptotics

Keywords:

[random perturbations](#); [Hamiltonian systems](#); [Lagrangian tori](#)

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