Metastability in systems of coupled multistable SDEs

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Abstract

We review recent results on the metastable dynamics of systems of coupled stochastic differential equations in the weak-noise regime. While generic reversible systems can be described by the Eyring-Kramers law, which quantifies mean transition times and small eigenvalues of the generator, this law typically fails to describe the systems we are interested in. This is due both to the existence of a symmetry group, and to the existence of bifurcation points at which degenerate equilibria occur. We will describe extensions of the Eyring-Kramers law to such situations, as well as an extension to the limit of infinitely many coupled units, described by a parabolic stochastic PDE.
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