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On recurrence of diffusion with switching

Abstract

The Markov system "Diffusion with switching" is otherwise called "Diffusion in a random environment", where this environment is due to a discrete component of the system, which is usually an independent ergodic Markov chain. Assume that depending on this discrete variable the diffusion component may be either in a recurrent or in a transient regime. Sufficient conditions for the overall positive recurrence are established. The notion of positive recurrence is, in particular, important because of the link of this property with the existence of the invariant measure and convergence to it. The talk will be based on the preprint *https://arxiv.org/abs/2111.00248.*