On ergodicity of Lévy-type processes in $\mathbb{R}^d$

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Abstract

In this talk, we derive sufficient conditions for the ergodicity of the specific class of Lévy-type processes. It is assumed that on test functions the generator of the respective semigroup admits the representation

$$Lf(x) = l(x)\nabla f(x) + \int_{\mathbb{R}^d\setminus\{0\}} \big(f(x+u) - f(x) - \nabla f(x)u\mathbb{1}_{|u|\leq 1}\big)\,\nu(x,du),$$

where $\nu(x,du)$ is a Lévy-type measure and $l\colon \mathbb{R}^d \to \mathbb{R}^d$. The conditions are given in terms of the measure $\nu(x,\cdot)$ and applicable to the case when the drift term is absent. The cases of symmetric and asymmetric $\nu(x,\cdot)$ are considered. The Lyapunov criterion is used to prove the results.

References

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