

Abstract:

Consider a d -dimensional α -stable processes with index in $\alpha \in (0, 1]$ and $d \geq 2$. Suppose that S is a region of the unit sphere $S^{d-1} = \{x \in \mathbb{R}^d: |x| = 1\}$. We construct the law of the aforesaid stable Lévy process conditioned to approach S continuously, either from inside S^{d-1} , from outside S^{d-1} or in an oscillatory way. (Note that all of these events in the conditioning have zero probability.) Our approach extends to the setting of the same family of stable processes hitting conditioned to continuously approach bounded domains of $(d-1)$ -dimensional hyperplanes. We appeal to a mixture of methods: The modern theory of self-similar Markov process as well as the classical potential analytic view.