PROPERTIES OF GREEN FUNCTION OF SYMMETRIC STABLE PROCESSES

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Abstract: We study the Green function $G_D(x, y)$ of symmetric $\alpha$-stable processes in $\mathbb{R}^d$ for an open set $D(0 < \alpha < 2, d \geq 3)$. Our main result gives the upper and the lower bound estimates of $G_D(x, y)$ for a bounded open set $D$ with a $C^{1,1}$ boundary. We also get a more direct formula for the Green function for a ball. As a simple conclusion we obtain “3G Theorem” and estimates of $E^x(\tau_D)$, where $\tau_D$ is the exit time of $D$.

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