POINT REGULARITY OF p-STABLE DENSITY IN $\mathcal{R}^D$ AND FISHER INFORMATION

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Abstract: In the paper we prove that the n-th directional derivative of a p-stable density $f(x)$ in the direction a can be estimated by

$$|D_a^n f(x)| \leq \frac{C(u)}{1+|x|}[f(x)]^{(1-u)[p/(1+p)]},$$

where $0 < u < 1$, and C depends also on geometrical properties of the Lévy measure. This inequality helps us to calculate the Fisher information of stable measures.

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