SINGULAR RIESZ MEASURES ON SYMMETRIC CONES

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ABSTRACT. A fundamental theorem due to Gindikin [Russian Math. Surveys, 29 (1964), 1-89] says that the generalized power $\Delta_s(-\theta^{-1})$ defined on a symmetric cone is the Laplace transform of a positive measure $R_s$ if and only if $s$ is in a given subset $\Xi$ of $\mathbb{R}^r$, where $r$ is the rank of the cone. When $s$ is in a well defined part of $\Xi$, the measure $R_s$ is absolutely continuous with respect to Lebesgue measure and has a known expression. For the other elements $s$ of $\Xi$, the measure $R_s$ is concentrated on the boundary of the cone and it has never been explicitly determined. The aim of the present paper is to give an explicit description of the measure $R_s$ for all $s$ in $\Xi$. The work is motivated by the importance of these measures in probability theory and in statistics since they represent a generalization of the class of measures generating the famous Wishart probability distributions.

REFERENCES


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