

Spherically symmetric measures in \mathbb{R}^n are rotationally invariant, indicating that their characteristic functions can be written as a composition of the Euclidean norm with a univariate function. If we replace the Euclidean norm with an ℓ_α norm, the resulting distributions are known as α -symmetric. This thesis aims to provide a general description of α -symmetric measures and explore various non-trivial examples. The existence of α -symmetric measures for a given α and dimension $n \in \mathbb{N}$ is discussed, along with the connection between the existence of α -symmetric measures and isometric embedding into L_p spaces through strictly stable distributions. One of the main properties explored in this thesis is the relationship between moments of non-integer order and α -symmetry in distributions. Additionally, several sufficient conditions for the existence and the form of α -symmetric measures are described. In the final chapter, a further generalization of α -symmetric distributions toward quasi-norms is discussed, along with the properties of the resulting concept of pseudo-isotropy.