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The Distribution of Quadratic forms in Elliptically Contoured Vectors

It is shown in this talk that a certain scale mixture representation of the density function of a central and non-central elliptically contoured vector yield computable expressions for the moments, the density and the distribution function of quadratic forms in elliptically contoured vectors. The same approach can readily be used to determine the distribution of other function of elliptically contoured vectors in terms of their Gaussian counterparts. A method of approximating the distribution function of quadratic forms in elliptically contoured vectors is considered as well.