On Riesz and Wishart Distributions Associated with Decomposable Undirected Graphs

(joint work with Steen A. Andersson, Indiana University, USA)

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Abstract

Classical Wishart distributions on the open convex cone of positive definite matrices and their fundamental features are extended to generalized Riesz and Wishart distributions associated with decomposable undirected graphs using the basic theory of exponential families. The families of these distributions are parameterized by their expectations/natural parameter and multivariate shape parameter and have a non-trivial overlap with the generalized Wishart distributions defined in Andersson and Wojnar (2004). We present the construction of these families, some of their appealing features, and present examples of how such distributions may arise in applications.

References:
♦ S.A. Andersson, T. Klein (2010). On Riesz and Wishart distributions associated with decomposable undirected graphs. Journal of Multivariate Analysis 101 (4), 789--810.
♦ S.A. Andersson, G.G. Wojnar (2004). Wishart distributions on homogeneous cones. Journal of Theoretical Probability 17 (4), 781--818.