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Central limit theorems for functionals of large dimensional sample covariance matrix and mean vector in matrix-variate skewed model

Joint with Taras Bodnar (Stockholm University) and Nestor Parolya (Leibniz University of Hannover).

In this poster we consider the asymptotic distributions of functionals of the sample covariance matrix and the sample mean vector obtained under the assumption that the matrix of observations has a matrix variate general skew normal distribution. The central limit theorem is derived for the product of the sample covariance matrix and the sample mean vector. Moreover, we consider the product of an inverse covariance matrix and the mean vector for which the central limit theorem is established as well. All results are obtained under the large dimensional asymptotic regime where the dimension p and sample size n approach to infinity such that $p/n-> c \in (0; 1)$.