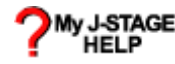


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## Asymptotic Results of a High Dimensional MANOVA Test and Power Comparison When the Dimension is Large Compared to the Sample Size

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**Abstract:** This paper is concerned with Dempster trace criterion for multivariate linear hypothesis which was proposed for high dimensional situation. First we derive asymptotic null and nonnull distributions of Dempster trace criterion when both the sample size and the dimension tend to infinity. Our approximations are examined through some numerical experiments. Next we compare the power of Dempster trace criterion with the ones of three classical criteria; likelihood ratio criterion, Lawley-Hotelling trace criterion, and Bartlett-Nanda-Pillai trace criterion when the dimension is large compared to the sample size.

**Key words:** asymptotic null and nonnull distributions, Dempster trace criterion, high dimensional situation, MANOVA tests, power comparison

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