

1035-62-1779

Weixing Cai* (wcai01@syr.edu), 215 Carnegie Hall, Syracuse University, Syracuse, NY 13244, and **Pinyuen Chen** (pinchen@syr.edu), 215 Carnegie Hall, Syracuse University, Syracuse, NY 13244. *Partitioning k Multivariate Normal Populations with Respect to a Standard Vector and its Equivalence in Multiple Testing.*

Based on a formulation similar to Tong's, we propose one-stage procedures to achieve the goal of partitioning k multivariate normal population into two disjoint subsets with respect to a given standard vector. Definition of good or bad multivariate normal populations is given according to their Mahalanobis distances from the known standard are small or large. Partitioning k multivariate normal populations is reduced to partitioning k noncentral Chi-Square or noncentral F distributions with respect to the corresponding noncentrality parameter depending on whether the covariance matrices are known or unknown. The smallest common sample size for each population is determined to insure that the probability of a correct decision attains certain level. We establish the equivalence between partitioning and multiple testing when we control both the familywise type I and type II errors. Simulation examples are used to show that our procedures work well. (Received September 20, 2007)