# IMPROVED CONFIDENCE SETS FOR THE MEAN OF A MULTIVARIATE NORMAL DISTRIBUTION

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**Abstract.** A new class of confidence sets for the mean of a $p$-variate normal distribution ($p \geq 3$) is introduced. They are neither spheres nor ellipsoids. We show that we can construct our confidence sets so that their coverage probabilities are equal to the specified confidence coefficient. Some of them are shown to dominate the usual confidence set, a sphere centered at the observations. Numerical results are also given which show how small their volumes are.

*Key words and phrases*: Stein-type estimator, coverage probability, uniform improvement.