

REFINED CRAMER TYPE MODERATE DEVIATION THEOREMS FOR GENERAL SELF-NORMALIZED SUMS WITH APPLICATIONS

Qi-Man Shao

Southern University of Science and Technology
E-mail: shaoqm@sustech.edu.cn

Abstract: "Let (X_i, Y_i) $1 \leq i \leq n$ be a sequence of independent random vectors. A refined Cramer type moderate deviation theorem for the self-normalized sum $(\sum_{i=1}^n X_i) / (\sum_{i=1}^n Y_i^2)^{1/2}$ is obtained. The result extends earlier results by Jing, Shao and Wang (2003) and Wang (2011). Application to dependent random variables, Huber's estimator and square-root LASSO will be discussed."