

Moment convergence of regularized least-squares estimator for linear regression model

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Abstract In this paper, we study the uniform tail-probability estimates of a regularized least-squares estimator for the linear regression model. We make use of the polynomial type large deviation inequality for the associated statistical random fields, which may not be locally asymptotically quadratic. Our results enable us to verify various arguments requiring convergence of moments of estimator-dependent statistics, such as the mean squared prediction error and the bias correction for AIC-type information criterion.

Keywords Moment convergence · Regularized least-squares estimation · Sparse estimation · Large deviation inequality

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