

On Estimation of a Matrix Mean under Matrix Loss

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Abstract Consider estimating an $n \times p$ matrix means of matrix random variables $X_{n \times p}$ under matrix quadratic error loss function. Abu-Shanab, Kent and Strawderman (2012) studied the independent normal distributions version and proposed a matrix version of shrinkage estimators which is dependent on a tuning constant a . We generalize their results to a broad class of models including estimation of Poisson means, estimating of Binomial samples sizes, estimating of natural parameters of discrete and continuous exponential families.

Acknowledgments Professor William Edward Strawderman, Sr., PhD, passed away on October 1st, 2024. We are deeply saddened that this paper becomes a memorial to him. May he rest in peace.