Laplace integrals for quadratic Wiener functionals and moderate deviations for parameter estimators

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Abstract: We study quadratic Wiener functionals and moderate deviations for parameter estimators in a linear stochastic differential equation model. Firstly, we give some estimates for Laplace integrals of the quadratic Wiener functionals by calculating the eigenvalues of the Hilbert-Schmidt operators associated with the quadratic functionals. Then applying the estimates, we establish deviation inequalities for the quadratic functionals and moderate deviation principles for the parameter estimators.