

LARGE DEVIATIONS FOR WISHART PROCESSES

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Abstract: Let $X^{(\delta)}$ be a Wishart process of dimension δ , with values in the set of positive matrices of size m . We are interested in the large deviations for a family of matrix-valued processes $\{\delta^{-1}X_t^{(\delta)}, t \leq 1\}$ as δ tends to infinity. The process $X^{(\delta)}$ is a solution of a stochastic differential equation with a degenerate diffusion coefficient. Our approach is based upon the introduction of exponential martingales. We give some applications to large deviations for functionals of the Wishart processes, for example the set of eigenvalues.

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