On large deviations for the Gaussian autoregressive process in the stable, unstable and explosive cases

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Abstract

For the Gaussian autoregressive process, the asymptotic behavior of the Yule-Walker estimator is totally different in the stable, unstable and explosive cases. We show that irrespective to this trichotomy, this estimator shares quite similar large deviation properties in the three situations. However, in the explosive case, we obtain an unusual rate function with a discontinuity point at its minimum.

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