

Identification of a Stable Gaussian Autoregressive Process by an Averaging Method

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Abstract

Let $dX_t = \theta X_t dt + \sigma dB_t$ be a stable gaussian autoregressive model in continuous time, where B is a standard real Brownian motion. By an averaging method, we construct an estimator of the couple (θ, σ^2) without discretization of the observed process. This estimator is shown to be asymptotically distributed as a couple of independent gaussian random variables for any given initial state X_0 is.

Keywords: Continous martingale, weight, averaging method, almost-sure central limit theorem, quadratic strong law, law of iterated logarithm.

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