

Drift parameter estimation in models with fractional Brownian motion by discrete observations

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Abstract

We study a problem of an unknown drift parameter estimation in a stochastic differential equation driven by fractional Brownian motion. We represent the likelihood ratio as a function of the observable process. The form of this representation is in general rather complicated. However, in the simplest case it can be simplified and we can discretize it to establish the a. s. convergence of the discretized version of maximum likelihood estimator to the true value of parameter. We also investigate non-standard estimators of the drift parameter showing further its strong consistency. As an auxiliary result of independent interest we establish global estimates for fractional derivative of fractional Brownian motion.