

Sharp Adaptive Estimation of the Trend Coefficient for Ergodic Diffusion.

A.S. DALALYAN

Laboratoire de Statistique et Processus, Université du Maine,
Avenue O. Messiaen 72085 Le Mans, Cédex 9, France
e-mails: ARNAK.DALALYAN@univ-lemans.fr

The problem of trend coefficient estimation based on continuous observations will be considered for a large class of ergodic diffusion processes. The unknown trend coefficient $s(\cdot)$ is supposed to be smooth of order $k \geq 1$, but the value of k is not known by the statistician. The error of estimation is measured by the weighted L^2 -loss. We construct an estimator which is adaptive with respect to the unknown smoothness using the method of estimated risk minimization. This estimator is sharp adaptive in minimax sense, that is it attains not only the optimal rate of convergence but also the optimal constant. This means that the adaptive estimator constructed in this paper behaves asymptotically as well as the ideal (minimax) estimator, when the time of observation becomes large.

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