D. Fourdrinier · S. Pergamenshchikov

Improved model selection method for a regression function with dependent noise

Abstract This paper is devoted to nonparametric estimation, through the $\mathcal{L}_2$-risk, of a regression function based on observations with spherically symmetric errors, which are dependent random variables (except in the normal case). We apply a model selection approach using improved estimates. In a nonasymptotic setting, an upper bound for the risk is obtained (oracle inequality). Moreover asymptotic properties are given, such as upper and lower bounds for the risk, which provide optimal rate of convergence for penalized estimators.

Keywords Model selection · Nonparametric estimation · Spherically symmetric distribution · Spherically symmetric regression model