Variable selection in nonparametric sparse regression
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The problem of exact recovery of an unknown multivariate signal f observed in the Gaussian white noise is studied. It is assumed that, in addition to some smoothness constraints, f possesses an additive sparse structure determined by the sparsity index $\beta \in (0, 1)$. As a consequence of the additive sparsity assumption, the recovery problem transforms to a variable selection problem. Conditions for exact variable selection are provided, and a family of asymptotically minimax variable selection procedures is constructed. The procedures are adaptive in the sparsity index β. This is a joint work with the late Professor Yuri Ingster.