

Optimal Nonparametric Testing under Sparsity

by

Pengsheng Ji

Dept. of Statistical Science and Dept. of Mathematics, Cornell University*

Ithaca, NY 14850

USA

`pj54@cornell.edu`

Abstract

The Gaussian sequence model with sparsity has been used for decades as a unified framework for nonparametric function estimation and testing, especially in wavelets modeling. The asymptotic testing problem is often studied by removing a small ball of radius ρ in the alternative hypothesis. We are interested in the tests with not only the optimal rate for ρ but also the optimal constant. Theoretical and simulation results concerning the proposed tests and Ingster's and Baraud's tests are given, and the related limit experiments are also studied.

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