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# Mean integrated squared error of nonlinear wavelet-based estimators with long memory data

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**Abstract** We consider the nonparametric regression model with long memory data that are not necessarily Gaussian and provide an asymptotic expansion for the mean integrated squared error (MISE) of nonlinear wavelet-based mean regression function estimators. We show this MISE expansion, when the underlying mean regression function is only piecewise smooth, is the same as analogous expansion for the kernel estimators. However, for the kernel estimators, this MISE expansion generally fails if an additional smoothness assumption is absent.

**Keywords** Mean integrated square error · Nonlinear wavelet-based estimator · Non-parametric regression · Long-range dependence · Hermite rank · Rates of convergence