



Nonparametric estimation of the kernel function of symmetric stable moving average random functions

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Abstract

We estimate the kernel function of a symmetric alpha stable ($S\alpha S$) moving average random function which is observed on a regular grid of points. The proposed estimator relies on the empirical normalized (smoothed) periodogram. It is shown to be weakly consistent for positive definite kernel functions, when the grid mesh size tends to zero and at the same time the observation horizon tends to infinity (high-frequency observations). A simulation study shows that the estimator performs well at finite sample sizes, when the integrator measure of the moving average random function is $S\alpha S$ and for some other infinitely divisible integrators.

Keywords High-frequency observations · Moving average random function · Self-normalized periodogram · Stable random function

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