Theory of prediction, interpolation and filtering of α-stationary random signals

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Highlights

- It is an improvement to the Wiener filter, adapting it to the treatment of non-stationary random signals. In addition, a methodology is developed for the prediction and estimation of these signals, starting from a random sequence.
- Filtering, estimation and prediction are one of the central problems in the treatment of non-stationary random signals and in many cases it is necessary to have a methodology for non-stationary deconvolution.
- Here we propose a unified methodology with the Wiener-Hopf theory as a limiting case, where the Fourier analysis is still valid, but now in the fractional sense. Thus, both non-stationary and stationary random signals are adapted through the fractional order.