27.01.2022 (Thu), 02:00 pm

_____

Ester Mariucci (Université Versailles Saint Quentin)

Nonparametric estimation of the Lévy density from high frequency observations

Abstract:

We consider the problem of estimating the Lévy density of a pure jump Lévy process, possibly of infinite variation, from the high frequency observation of one trajectory. To directly construct an estimator of the Lévy density, we use a compound Poisson approximation and we build a linear wavelet estimator. Its performance is studied in terms of L_p loss functions, $p\geq1$, over Besov balls. To show that the resulting rates are minimax-optimal for a large class of Lévy processes, we propose new non-asymptotic bounds of the cumulative distribution function of Lévy processes with Lévy density bounded from above by the density of an alpha-stable type Lévy process in a neighbourhood of the origin.

It is a joint work with Céline Duval.