

# FRACTIONAL LÉVY PROCESSES

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There have been several suggestions for the definition of fractional Lévy processes. The general idea is that they should be generalisations of fractional Brownian motion, but “driven” by Lévy noise in some sense. In the literature, fractional Lévy processes are often defined by replacing Brownian motion by more general Lévy process in infinitely supported Mandelbrot-Van Ness integral representation of fractional Brownian motion.

In this work, a new definition for fractional Lévy processes is introduced. This is done by taking compact interval Molchan-Golosov representation of fractional Brownian motion, where the driving Brownian motion is replaced by a more general Lévy process.

It is proved that fractional Lévy processes by the different integral transformations do not have the same distribution in general. However, a connection between the two fractional Lévy process concepts is presented. The properties of the processes are analysed and compared.