
ZHENYUAN ZHANG, University of Waterloo

On discrete-time self-similar processes with stationary increments

We study the self-similar processes with stationary increments in a discrete-time setting. Different from the continuous-time case, it is shown that the scaling function of such a process may not take the form of a power function $b(a) = a^H$. More precisely, its scaling function has an Ostrowski-type classification. We then focus on the processes with a p-adic type scaling function, give a class of examples, and prove a special spectral representation result for the processes of this type in L^2 .