Infinitely Divisible Shotnoise: 
Local scaling and moments

Rolf RIEDI

Abstract

One of the reasons for the popularity of fractional Brownian motion and self-similar processes lies in their simple scaling properties. Real world signals in computational finance, networking and other fields, however, show often more complex behavior. Classical multiplicative cascades can accommodate complexity in scaling but lack basic statistical properties such as stationarity of increments.

In this talk we present Infinitely Divisible Shotnoise, a class of processes in form of infinite products of pulses which combine stationarity of increments with rich scaling properties. Pulses are not required to be of finite support. We establish convergence and scaling properties in terms of moments and shape of the pulses. Examples include products of wavelets and probability distributions such as the exponential and the Gaussian.