Generalized continuous-time random processes with longe-range dependence

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ABSTRACT

We introduce continuous-time random processes whose spectral density is unbounded at some non-zero frequencies. The correlation function of such processes is of the form:

$$B(t) = \frac{\cos(\varkappa t)}{(1 + t^2)^{\frac{\alpha}{2}}}, \qquad 0 < \alpha \leq 1, \quad \varkappa \in R.$$

The discrete version of these processes has asymptotic properties similar to discrete-time Gegenbauer processes. We present some properties of the corellation function as well as a theory of statistical estimation of unknown parameters of such processes.

Keywords: *Continuous-time processes, long-range dependence, Gegenbauerprocess, singular spectrum*

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