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A stochastic diffusion process based in the one-parameter Weibull density function

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SUMMARY

In the present study, we deal with a new stochastic diffusion process based on the Weibull density function (its trend is proportional to the Weibull density function). This process can be obtained by the same methodology used in Gutiérrez et al [2, 3]. to define the stochastic Gamma diffusion model. First of all, we obtain the probabilistic characteristics of this process, as the explicit expression of the process, its transition probability density function, its distribution, and its trend functions (conditional and non-conditional). Then the parameters of the process are estimated by considering discrete sampling of the sample path of the model and by using the maximum likelihood methodology.

Keywords: Weibull density function, trends functions, likelihood estimation method, discrete sampling.

AMS Classification: 60J60; 62M05

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