

Multifractality of the multiplicative autoregressive point processes

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Multiplicative processes and multifractals have earned increased popularity in applications ranging from hydrodynamic turbulence to computer network traffic, from image processing to economics. We analyse the multifractality of the recently proposed point process models generating the signals exhibiting $1/f^b$ noise. The models may be used for modeling and analysis of stochastic processes in different systems. We show that the multiplicative point process models generate multifractal signals, in contrast to the formally constructed signals with $1/f^b$ noise and signals consisting of sum of the uncorrelated components with a wide-range distribution of the relaxation times.

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