



## **Continuous cascade models with zero values: a continuous beta-multifractal model; theory and simulations**

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Here we propose for the first time a multiplicative continuous model for multifractal fields with zero values. It is built using infinitely multiplicative random variables, the multiplicative analog to infinitely divisible distributions for addition. The model also needs stochastic multiplicative measures and multiplicative stochastic integrals. The model produced possesses as special case a continuous generalization of the classical discrete beta-model. Applications are numerous in many fields of applied sciences, including smallscale rainfall, soil sciences. Simulations are shown in 1D and in 2D. Dynamical simulations can also be proposed.