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Properties of a generalized fractional Brownian motion.

We discuss some pathwise properties of a generalized fractional Brownian motion that emerges as a scaling limit of a shot noise process with a power-law shape function and non-stationary noises with a power-law variance function. It is a Gaussian, self-similar process but without stationary increment property, and in that sense it is a generalization of fractional Brownian motion. We discuss its smoothness, laws of the iterated logarithms, and mainly focus on the semimartingale properties and their applications to stochastic volatility modeling. Part of research is joint work with Murad Taqqu and Guodong Pang. (Received August 31, 2021)