

CHARACTERIZATIONS OF POLYNOMIAL-GAUSSIAN PROCESSES THAT
ARE MARKOVIAN

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Abstract: We consider questions of characterizing a stochastic process $\mathfrak{X} = (X_t, t \geq 0)$ by the properties of the first two conditional moments. Our first result is a new version of the classical P. Lévy characterization theorem for martingales. Next we deal with a characterization of processes without continuous trajectories. We consider a special form of the initial state. Namely, we suppose that the r.v. X_0 has a polynomial-normal distribution (PND), i.e. the density of X_0 is the product of a positive polynomial and a normal density.

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