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# Full characterization of the fractional Poisson process

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The fractional Poisson process (FPP) is a counting process with independent and identically distributed inter-event times following the Mittag-Leffler distribution. This process is very useful in several fields of applied and theoretical physics including models for anomalous diffusion. Contrary to the well-known Poisson process, the fractional Poisson process does not have stationary and independent increments. It is not a Lévy process and it is not a Markov process. In this letter, we present formulae for its finite-dimensional distribution functions, fully characterizing the process. These exact analytical results are compared to Monte Carlo simulations.

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