

On Gaussian Compound Poisson Type Limiting Likelihood Ratio Process

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Abstract

Different change-point type models encountered in statistical inference for stochastic processes give rise to different limiting likelihood ratio processes. Recently it was established that one of these likelihood ratios, which is an exponential functional of a two-sided Poisson process driven by some parameter, can be approximated (for sufficiently small values of the parameter) by another one, which is an exponential functional of a two-sided Brownian motion. In this talk we consider yet another likelihood ratio, which is the exponent of a two-sided compound Poisson process driven by some parameter. We establish, that similarly to the Poisson type one, the compound Poisson type likelihood ratio can be approximated by the Brownian type one for sufficiently small values of the parameter. We equally discuss the asymptotics for large values of the parameter and illustrate the results by numerical simulations.