SIEVE-BASED MAXIMUM LIKELIHOOD ESTIMATOR FOR ALMOST PERIODIC STOCHASTIC PROCESS MODELS

Jacek Leśkow

Abstract: Assume that the point process \{N(t); t \geq 0\} is observed with stochastic intensity of the form \(\lambda(t) = \lambda_0(t) \cdot Y(t)\), where \(\lambda_0\) is an unknown almost periodic nonnegative function and \(Y(t)\) is an observable nonnegative stochastic process. It is shown that the sieve-based maximum likelihood estimator of \(\lambda_0\) is consistent in the appropriate metric of the space of uniformly almost periodic (UAP) functions. The same technique establishes the consistency of the sieve-based maximum likelihood estimator of a UAP drift function in a stochastic differential equation.

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