

**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 λ_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 λ_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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