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TWO-STEP ESTIMATION PROCEDURES FOR INHOMOGENEOUS SHOT-NOISE COX PROCESSES

Shot-noise Cox processes constitute an important class of Cox point processes and provide flexible models for fitting clustered point patterns. In the stationary case several moment estimation methods were developed as an alternative to the computationally demanding maximum likelihood. These methods incorporate classical ideas of minimal contrast estimation and composite likelihood, or employ a more geometrical approach, so-called Palm likelihood.

For inhomogeneous point patterns a two-step procedure can be developed to fit non-stationary shot-noise Cox process models. In the first step the inhomogeneity parameters are estimated by neglecting any interactions and using Poisson likelihood. Then, the interaction parameters are estimated using an adaptation of a method from the stationary case, under the assumption that the inhomogeneity parameters are known. We present the resulting estimators and discuss their properties.