



Non-parametric adaptive bandwidth selection for kernel estimators of spatial intensity functions

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Abstract

We introduce a new fully non-parametric two-step adaptive bandwidth selection method for kernel estimators of spatial point process intensity functions based on the Campbell–Mecke formula and Abramson’s square root law. We present a simulation study to assess its performance relative to other adaptive and global bandwidth selectors, investigate the influence of the pilot estimator and apply the technique to two data sets: A pattern of trees and an earthquake catalogue.

Keywords Adaptive kernel estimation · Bandwidth selection · Campbell–Mecke formula · Intensity function · Poisson leave-one-out cross-validation log likelihood · Point process

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