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# Spectral estimation of Hawkes processes from count data

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## Résumé

Hawkes processes are a family of stochastic processes for which the occurrence of any event increases the probability of further events occurring. When count data are only observed in discrete time, we propose a spectral approach for the estimation of Hawkes processes, by means of Whittle's estimation method. To get asymptotic properties for the estimator, we prove alpha-mixing properties for the series of counts, using the Galton-Watson properties of the cluster representation of Hawkes processes. Simulated datasets and an application to the incidence of measles in Tokyo illustrate the performances of the estimation, notably of the Hawkes reproduction function, even when the time between observations is large.

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