

Séminaire de Probabilités et Statistique

Mardi 29 novembre 2022 à 14h00

Laboratoire Dieudonné

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Some asymptotic properties of inhibitive Hawkes process

Hawkes process was introduced by Hawkes in 1971 and are widely used in many applications (earthquakes, neurons, social network, finance, etc.). This jump process has an intensity which depends on the past. Linear "self-exciting" Hawkes process has been particularly studied and some asymptotic results are well-known. During my PhD, with Manon Costa and Patrick Cattiaux, I considered non-linear Hawkes processes, which can model self-inhibition and self-excitation. We proved asymptotic properties (law of large numbers, CLT, large deviations), by considering a new point of view for this process: the renewal structure of Hawkes process, introduced by Costa, Graham, Marsalle and Tran (2020), leads to a comparison with cumulative processes.

In this talk, I'll introduce Hawkes processes and cumulative processes. By exhibiting their link, I'll give an idea of the approach we use to prove asymptotic properties.