

Coupling and beta-mixing properties for nonlinear Hawkes processes

Abstract : Coupling and mixing are powerful tools in probability and asymptotic statistics, often used to establish key theoretical results. In this talk, we present new results on the mixing properties of nonlinear Hawkes processes. After reviewing the mathematical foundations of coupling and mixing, we derive an explicit upper bound for the beta-mixing coefficient of Hawkes processes under general conditions. As an illustration, this result enables the derivation of concentration inequalities, using similar techniques as in Reynaud-Bouret and Roy (2006). Finally, we show that our conditions cannot be significantly relaxed, by exhibiting a counter-example for which the process is non-mixing.