Consistency and structured dependence of the Hawkes processes

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The classical Hawkes processes introduced by Hawkes and Oakes are self-exciting point processes N with stochastic intensity depending od the jump times of N. In this talk we introduce the generalized multivariate Hawkes processes and address the corresponding consistency properties. In the context of the Hawkes process we say that multivariate Hawkes process $N = (N^1, \ldots, N^d)$ is consistent with respect to its component N^i is Hawkes processes in the natural filtration of N^i.