Large Deviations for Marked Hawkes Point Processes

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Marked Hawkes point process generalizes the classic Hawkes process by considering events with different characteristics having different impacts on the arrival of future events. It has been widely used in many fields, e.g., insurance, finance and biology. The functional law of large numbers and functional limit theorem have been established in Horst and Xu (2021). In this work we mainly study under the stability condition, the large deviation principle for Hawkes point measures with abstract-valued random marks and their shot noise processes with response functions being the cumulant impact of each event on the underlying system. This talk is based on the joint work with Wei Xu.