Threshold estimation for stochastic differential equations with jumps

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In recent years, the statistical inference for discretely observed jump processes is an important issue in finance and insurance. Due to the discreteness, it is unclear that an increment of neighboring data essentially comes from continuous or discontinuous shocks, which causes some difficulties for estimating unknowns in the underlying process. Threshold estimation is one of the useful techniques to disentangle the continuous shocks and real jumps, where if an increment of data is smaller than a prechosen threshold, then we regard the increment does not include any jump. However, the choice of the threshold has optionality in practice, and the standard way has not been established yet. In this talk, we shall propose how to select some "optimal" thresholds from given data, and study the performance by simulations.

Keywords: Discretely observed jump processes, threshold estimation, optimal threshold.