

Extremes of stationary heavy-tailed time series

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We will present a framework for describing the asymptotic behavior of high-level exceedances for stationary (i.e. dependent) time series with heavy-tailed marginal distribution and whose exceedances occur in clusters; think of modelling e.g. financial returns or daily rainfall measurements. The main tools are the theory of point processes and the notion of the so-called tail process. The latter allows one to fully describe the asymptotic distribution of the extremal clusters using the language of standard Palm theory. We will illustrate the general theory on simple moving average models. If time permits, we will comment on how this framework can be extended to deal with extremes related to models from stochastic geometry.