

abstract: In this talk, we derive asymptotic properties of the local polynomial quantile estimator under the extremal order quantile asymptotics, and develop a practical and accurate inference method for conditional quantiles in extreme tail areas. By using a point process technique, the asymptotic distribution of the local polynomial estimator is derived as a minimizer of certain functional of a Poisson point process that involves nuisance parameters. To circumvent difficulty of estimating those nuisance parameters, we propose a subsampling inference method for conditional extreme quantiles based on a self-normalized version of the local polynomial estimator. We also give some extensions of our results to (i) varying extreme value index models and (ii) varying coefficient regression models. A simulation study illustrates usefulness of our subsampling inference to investigate extremal phenomena.