Department of Statistics

DISSERTATION PROPOSAL

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Concentration Inequalities for Empirical Processes of Linear Time Series

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ABSTRACT

In this talk, we consider suprema of empirical processes for linear time series indexed by functional classes. We discuss a Gaussian approximation and an upper bound for the tail probability of the suprema under conditions of the size of the function class, the sample size, temporal dependence and the moment conditions of the underlying time series. Due to the dependence of the time series and heavy-tailedness of its innovations, our tail probability bound is substantially different from those exponential bounds obtained under independence in that it involves a polynomial decaying term. Both short- and long-range dependent processes are allowed. Finally, we will discuss the sharpness of our upper bound.

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