



STATISTICS SEMINAR

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*"M-estimation in semi-parametric models when the
criterion function is not smooth"*

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14:30
Room : **c 115 (STAT)**

Abstract

In many situations, the parameter of interest is defined as the maximizer (or minimizer) of the mean $M(\theta)$ of a given criterion function $m_\theta(\cdot)$. A usual idea is to take as estimator the value that maximizes the empirical mean $M_n(\theta)$. Such estimators, called M -estimators, have been widely studied in the case of parametric models. The use of empirical process properties allow to prove the consistence of these estimators and study their asymptotic distribution under weak assumptions (see for instance Van der Vaart and Wellner, 1996 or Van der Vaart, 1998, for a review). In semi-parametric models, the criterion function also depends on an unknown nuisance parameter η_0 . Assuming the existence of some consistent estimator η of η_0 , M -estimators are defined as the maximizers of $M_n(\theta, \eta)$. Various kinds of results have been obtained assuming that the operator $\theta \rightarrow m_\theta$ is smooth. Recently, Chen *et al.* (2003) studied the asymptotic properties of Z -estimators when the criterion function is not smooth with respect to θ . The aim of this talk is present how it is possible to extend their approach to the case of M -estimators using ideas introduced in the parametric case by Van der Vaart and Wellner (1996). In many cases, it is possible to show that the convergence rates of these estimators are the same as if the nuisance parameter were known. Examples of potential applications will be discussed to illustrate the interest of our results.

You are welcome to the coffee break after the seminar (room : c 105)

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