Nonasymptotic Wilks phenomenon in semiparametric estimation

Andreas Andresen (WIAS Berlin)

We present a new finite sample approach to analyse profile quasi maximum likelihood estimators in semi parametric estimation problems. Under specified conditions a global concentration result and a local linear approximation of the quasi likelihood functional can be obtained. These simplify the analysis of the properties of the estimator even when the number of observations remains finite. In particular concentration and confidence sets can be given as deviation bounds for a quadratic form similar to the chi-square type confidence sets in the Wilks phenomenon. As an exemplification we apply this technique to the linear regression problem with error in the operator.