Séminaire de Probabilités et Statistiques

Vendredi 15 décembre à 14h00

Laboratoire Dieudonné

Salle de Conférences

Stanislav Minsker

(University of Southern California)

Moment inequalities for operator-valued U-statistics and applications to robust estimation of covariance matrices

Let Y be a d-dimensional random vector. Our work is motivated by the problem of designing an estimator of the covariance matrix of Y that admits tight (sub-Gaussian or sub-exponential) deviation bounds under minimal assumptions on the underlying distribution, such as existence of 4^{th} moment of the norm of Y. We present new Rosenthal-type moment inequality and Bernstein-type exponential tail bounds for the operator-valued U-statistics, and demonstrate the implications of these results to the covariance estimation problem under various structural assumptions.

This talk is based on a joint work with X. Wei.