High-Dimensional
Non-Stationary Time Series Analysis

IRTG 1792 Short Course

Alexandre Tsybakov

Oracle Inequalities for Network Models and Sparse Graphon Estimation

Inhomogeneous random graph models encompass many network models such as stochastic block models and latent position models. In this paper, we study two estimators – the ordinary block constant least squares estimator, and its restricted version. We show that they satisfy oracle inequalities with respect to the block constant oracle. As a consequence, we derive optimal rates of estimation of the probability matrix. Our results cover the important setting of sparse networks. Nonparametric rates for graphon estimation in the L2 norm are also derived when the probability matrix is sampled according to a graphon model. The results shed light on the differences between estimation under the empirical loss (the probability matrix estimation) and under the integrated loss (the graphon estimation). This is a joint work with Olga Klopp and Nicolas Verzelen.

29.10.2015 | 10:30-12:00

Room 23, SPA1

Alexandre Tsybakov obtained his PhD at Institute for Problems of Information Transmission, USSR Academy of Sciences, Moscow in 1982. Now he is a Professor at Laboratoire de Statistique, CREST (Centre de Recherche en Economie et Statistique). His fields of research interests include nonparametric estimation, high-dimensional inference and sparsity, learning theory, statistics of inverse problems, classification, image analysis.