



KU LEUVEN

Statistics and Econometrics Seminar

Joint organization by
ORSTAT, Faculty of Business and Economics and the Statistics Research Group,
Faculty of Science
Leuven Statistics Research Center

Prof. Dr. Florent Autin

Université d'Aix-Marseille 1, France

AND

Dr. Jean-Marc Freyermuth

ORSTAT, Faculty of Business and Economics, KU Leuven,

“Maxiset approach in nonparametric function estimation”

Thursday, March 8, 2012

⇒ **11.00–12.00h, 12.30–13.30h** ⇐

Location: Room HOG 03.101, Naamsestraat 69, Leuven.

Supporting research project: GOA-project 2007/04

Abstract. In the framework of a wavelet analysis, we present a complementary approach to the minimax one: the *maxiset approach*. It allows us to theoretically explain some phenomena observed in practice which are not explained by the minimax approach. In this setting, we aim at investigating the maximal functional spaces (maxisets) where procedures' quadratic risk attain a given rate of convergence. In particular, we show that procedures which consist in thresholding coefficients by groups, as vertical-block or horizontal-block thresholding rules, are more efficient in the maxiset sense than procedures which consist in thresholding coefficients individually. Then, considering many large families of shrinkage procedures, we look for the optimal ones in the maxiset sense and we propose a way to combine those with non-embedded maxiset in order to build 'better' procedures. Finally, we investigate the generalization of such procedures to higher dimensions, putting special emphasis on time series analysis through the problem of estimating the time-varying spectral densities of locally stationary processes.

Joint work with: Rainer von Sachs and Gerda Claeskens.