

STATISTICS COLLOQUIUM

MONDAY, SEPTEMBER 30, 2013

TALK: 4:15 PM — SCIENCE CENTER RM. 705

RECEPTION: 3:50 PM — SCIENCE CENTER, 7TH FLOOR

“On Bayesian nonparametric adaptive estimation under the L_∞ loss”

Judith Rousseau

CEREMADE

(Centre De Recherche en Mathématiques de la Décision)

Université Paris Dauphine

ABSTRACT

There has been an increasing literature in the past ten years on asymptotic properties of Bayesian nonparametric procedures, initiated mostly by the work of Ghosal, Ghosh and van der Vaart (1999) on posterior concentration rates for density estimation. There has been an increasing literature on the posterior concentration in nonparametric models and most of this literature deal with measures of concentrations in terms of losses that are “natural”, like the L_2 in Gaussian regression models or the Hellinger or the L_1 metric in density estimation models. Recently some negative results have been obtained showing that bias might appear when some other types of losses are considered. In this work we first give some general results linking the control on the posterior concentration rate to the considered loss and some “natural loss” in a way similar to Cai and Low (2006). Then we study more precisely the case of the L_∞ loss for which we exhibit both lower and upper bounds and we propose an adaptive Bayesian nonparametric prior in the case of the white noise model.

Joint work with Marc Hoffman and Johannes Schmidt-Hieber (Paris Dauphine and CREST-ENSAE)