

## 17 On some properties of Polya trees posterior distributions

Ismael Castillo (Universities Paris VI and VII)

In Bayesian nonparametrics, Polya tree distributions form a popular and flexible class of priors on distributions or density functions. In the problem of density estimation, for certain choices of parameters, Polya trees have been shown to produce asymptotically consistent posterior distributions in a Hellinger sense.

In this talk, after reviewing some general properties of Polya trees, I will show that the previous consistency result can be made much more precise in two directions: 1) rates of convergence can be derived 2) it is possible to characterise the limiting shape of the posterior distribution in a functional sense. We will discuss a few applications to Donsker-type results on the cumulative distribution function and to the study of some functionals of the density.