THE *-EDGE REINFORCED RANDOM WALK, BAYESIAN STATISTICS AND STATISTICAL PHYSICS

PIERRE TARRES

We will discuss recent non-reversible generalizations of the Edge-Reinforced Random Walk and its motivation in Bayesian statistics for variable order Markov Chains. The process is partially exchangeable in the sense of Diaconis and Freedman (1982), and its mixing measure can be explicitly computed. It can also be associated with a continuous process called the *-Vertex Reinforced Random Walk, which itself is in general not exchangeable. We will also discuss some properties of those processes, in particular the supersymmetric representation of the *-VRJP.

Based on joint works with S. Bacallado, C. Sabot and A. Swan.