

Concentration bounds for stochastic chains

Sandro Gallo¹, Jean-René Chazottes², Daniel Y. Takahashi³

¹ UFSCar, Brasil

² École Polytechnique, France

³ UFRN, Brasil

We present new gaussian concentration bounds in the context of stochastic chains with countable alphabet. These results apply for two regimes of interest, the case of Dobrushin uniqueness, and the case of summable continuity rate. Our results are tight in the sense that, if we relax our conditions, then there exist examples for which no gaussian concentration bounds are possible. We will also present two applications, one is a Dvoretzky-Kiefer-Wolfowitz inequality, and the other is an approximation, in the \bar{d} -metric, of the stochastic chain by Markov chains of increasing order.