

Deviation inequalities for Gibbsian random fields via coupling

Jean Rene Chazottes

I present a simple approach based on coupling to obtain deviation inequalities for non-product measures. This provides upper bounds for the probability of deviation of an arbitrary local function from its expected value. I shall illustrate these results with the Ising model. For the high-temperature Ising model, this gives an exponential bound while in the low-temperature case, this gives polynomial bounds. I will discuss some applications of these deviation inequalities. This is a joint work with Pierre Collet, Christoff Kuelske and Frank Redig.