From entropic propagation of chaos to concentration bounds for stochastic particle systems

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Abstract

We shall discuss about weakly interacting stochastic particle systems with possibly singular pairwise interactions. In this setting, we observe a connection between entropic propagation of chaos (proved by Jabin and Wang, 2018) and exponential concentration bounds for the empirical measure of the system. In particular, we will show how to establish a variational upper bound for the probability of a certain rare event, and then use this upper bound to show that "controlled" entropic propagation of chaos implies an exponential concentration bound for the empirical measure.

Joint work with Joe Jackson.