

**Abstract.** For reversible Markov processes, concentration inequalities for empirical mean of the process can be expressed using the Dirichlet form defined using the Markov generator. Using functional inequalities, one can then derive generic gaussian concentration bounds. These inequalities characterize the speed of convergence of some estimator at finite time.

In a recent joint work with Lisa Hänggli and Cambyse Rouzé (arXiv:2109.13152), we derive similar concentration inequalities for the signal obtained through the continuous indirect measurement of a quantum system. These inequalities are expressed using the non commutative equivalent of the Dirichlet form. Using non commutative functional inequalities we obtain generic gaussian concentration bounds. Hence, we obtain a speed of convergence of some estimator of the system invariant state at finite time. I will present these results.