A Central Limit Theorem for Fleming-Viot Particle Systems

Arnaud GUYADER, UPMC

Frédéric CEROU, INRIA

Bernard DELYON, Université Rennes 1

Mathias ROUSSET, INRIA

Fleming-Viot type particle systems represent a classical way to approximate the distribution of a Markov process with killing, given that it is still alive at a final deterministic time. In this context, each particle evolves independently according to the law of the underlying Markov process until its killing, and then branches instantaneously on another randomly chosen particle. While the consistency of this algorithm in the large population limit has been recently studied in several articles, our purpose here is to prove Central Limit Theorems under very general assumptions. For this, we only suppose that the particle system does not explode in finite time, and that the jump and killing times have atomless distributions.

Arnaud GUYADER, UPMC, 4 Place Jussieu, 75005 Paris
arnaud.guyader@upmc.fr