

D. Villemonais : Binary branching processes with Moran type interactions

jeudi 12 septembre 2024 11:20 (40 minutes)

During this talk, we will consider the large population limit of a binary branching particle system with Moran type interactions introduced recently: this is a model where particles evolve, reproduce and die independently and, with a probability that may depend on the configuration of the whole system, the death of a particle may trigger the reproduction of another particle, while a branching event may trigger the death of another one. We study the occupation measure of the new model, explicitly relating it to the Feynman-Kac semigroup of the underlying Markov evolution and quantifying the L^2 distance between their normalisations. This model extends the fixed size Moran type interacting particle system. We will consider applications of our model as a numerical application scheme and study its convergence uniform in time under spectral gap assumptions for the underlying semi-group.