Branching processes in random environment (Juan Carlos Pardo, CIMAT)

Abstract

In this course, I will focus in branching models in random environment that describe
the dynamics of a given population which are affected by random events. I will first
start with the simplest model, the so-called Galton Watson processes in random
environment, where I will survey some of their most important properties. In the
sequel, I will introduce its continuous analogue, in space and time, using stochastic
differential equations. I will define the most general continuous model but for
simplicity I will focus the construction in the case where the branching mechanism is
associated with a Brownian motion and the random environment is driven by a Brownian
motion and a compound Poisson process.