Recurrent Extensions of Self-similar Markov Processes

P.J. Fitzsimmons
UC San Diego

ABSTRACT

Let $X = (X_t)_{t \geq 0}$ be a self-similar Markov process with values in $[0, \infty[$, such that the state 0 is a trap. We present a necessary and sufficient condition for the existence of a self-similar recurrent extension of X that leaves 0 continuously. This condition is expressed in terms of the Lévy process associated with X by the Lamperti transformation.