Stochastic Equations and Lamperti Transformations

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Abstract: Two important classes of Markov processes, continuous-state branching processes and positive self-similar processes, can be constructed from Lévy processes by Lamperti transformations. A drawback of those transformations is that they only work for Markov process having zero as a trap. We review some recent results on strong solutions of stochastic equations, which can be used to construct Markov processes and extend the range of applications of the Lamperti transformations.