

Theoretical study of the Duffing and Van Der Pol oscillators as a stochastic differential equation.

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Abstract: In this work, we will focus on the theoretical study of Duffing and Van Der Pol oscillators, such as the existence, uniqueness and non-explosion of solutions, we start by modeling these two oscillators as, an stochastic differential equation, then based on a non-explosion criterion of Khasminski, we will build Lyapunov functions which ensure the non-explosion of solution, where we will obtain sufficient conditions so that the solution does not explode..

Keywords: Duffing, Van Der Pol, Non-explosion, SDE, Lyapunov Function

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