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Random Periodic Solutions of SDEs

Abstract

In my talk, I will discuss the existence of random periodic solutions (r.p.s.) for SDEs with additive and linear noise. We identify these as the solutions of coupled forward-backward infinite horizon stochastic integral equations in general cases. Then we use the Wiener–Sobolev compact embedding and Schauder's fixed point theorem to prove the existence of a solution of the integral equations. Finally, I will talk a specific example and prove that it has a r.p.s. with minimum positive period. This is a joint work with Huaizhong Zhao.