ON NEUTRAL STOCHASTIC INTEGRODIFFERENTIAL EQUATIONS WITH INFINITE DELAY DRIVEN BY FRACTIONAL BROWNIAN MOTION

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Abstract. In this paper, we study a class of neutral stochastic functional integrodifferential equations with infinite delays driven by a standard cylindrical Wiener process and an independent cylindrical fractional Brownian motion with Hurst parameter $H \in (\frac{1}{2}, 1)$ in a Hilbert space. We prove the existence and uniqueness of the mild solution for this kind of equations with the co-efficients satisfying some non-Lipschitz conditions, which include the classical Lipschitz conditions are special case.

Keywords. Existence, Uniqueness, Neutral stochastic integrodifferential system, Fractional Brownian motion, Resolvent operator.

AMS (MOS) subject classification: 34G20, 35R12, 60J65, 60J75, 60H15.

1 Introduction

In recent years, stochastic differential equations have received more attention. They have been applied to model various phenomena in mechanical, electrical, economics, physics and several fields in engineering and so on. One can see [1, 6, 7, 11] and the reference therein. Several authors have established the existence results of mild solution for these equations (see [2, 5, 12, 15] and the references therein).

Fractional Brownian motion (fBm) is a Gaussian stochastic process, which depends on a parameter H$\in (\frac{1}{2}, 1)$ called the Hurst index and it was introduced by Kolmogorov [13]. For more details on the fBm, we refer the reader to [14]. Recently, stochastic partial functional differential equations driven by a fBm have attracted the interest of many researchers. Especially, Duncan