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Abstract

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1 Introduction

Where A is the infinitesimal generator of a strongly continuous semigroup $\{\mathcal{T}(t)\}_{t\geq 0}$ of bounded linear operators on a separable Hilbert space $\mathbb{H}$ with domain $\mathbb{D}(A)$, $h : \mathbb{D}(h) \to \mathbb{H}$ is a closed linear operator on $\mathbb{H}$ with domain $\mathbb{D}(A) \subset \mathbb{D}(h)$, φ, ψ and $f : [0,T] \to \mathcal{L}_2^0(\mathbb{V},\mathbb{H})$ are appropriate functions, where $\mathcal{L}_2^0(\mathbb{V},\mathbb{H})$ denotes the space of all Hilbert-Schmidt operators from $\mathbb{V}$ into $\mathbb{H}$.

2 Preliminaries

In this section, we introduce some important results which will be needed throughout this paper.

Now, for a given $T > 0$, Let $J = [0;T]$ we define

$$\begin{aligned}\mathcal{D} = \Big\{y\colon [0,T]\times\Omega \to \mathbb{R}^n,\ & y \text{ is continuouse at } t \neq t_i \text{ for } i = 1,\ldots N,\\ & \text{and there exist } \ y(t_i^-) \text{ and } y(t_i^+) \text{ with } y(t_i) = y(t_i^-),\ \ i = 1,\cdots,N\\ & \text{and } \sup_{t\in[0,T]} E(|y(t)|^2) < \infty\Big\},\end{aligned}$$

endowed with the norm

$$\|y\|_{\mathcal{D}} = \sup_{\theta\in[0,T]} (E(|y(t)|^2)^{\frac{1}{2}},$$

3 Section 1

In this work we show a results [3] and [1].

Theorem 3.1 *This is a theorem about right triangles and can be summarised in the next equation*

$$x^2 + y^2 = z^2$$

And a consequence of theorem 3.1 is the statement in the next corollary.

Corollary 3.1.1 *There's no right rectangle whose sides measure 3cm, 4cm, and 6cm.*

A fractional Brownian motion (FBM) $\{B^H(t)\}_{t\geq 0}$ of Hurst parameter $H \in (0,1)$, is a continuous and centered Gaussian process with covariance function

$$R_H(t,s) = \mathbb{E}(B^H(t)B^H(s)) := \frac{1}{2}\big(t^{2H} + s^{2H} - |t-s|^{2H}\big), \qquad \text{for} \quad t,s \geq 0.$$

Lemma 3.2 *[2] For* $\phi \in L^{\frac{1}{H}}([0,T])$

$$H(2H-1)\int_0^T \int_0^T |\phi(s)||\phi(t)||t-s|^{2H-2} dt ds \leq c_H \|\phi\|^2_{L^{\frac{1}{H}}([0,T])}. \tag{1}$$

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