

Surface Integral in Hilbert spaces

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The aim of this talk is to present an easy construction of surface integration in Hilbert spaces. Several papers have been devoted to this topics in the case of a Gaussian measures, starting from the pioneering papers by Airault-Malliavin and Fejer-De la Pradelle. Our construction is simpler, in our opinion, and applies to non Gaussian measures.

As a toy example we consider for any $m \in \mathbb{N}$ the product measure on ℓ^2

$$\nu_m := \prod_{h=1}^{\infty} \nu_{m, \mu_h},$$

where for any $\mu > 0$

$$\nu_{m, \mu}(dx) := a_m \mu^{-\frac{1}{2m}} e^{-\frac{x^{2m}}{2m\mu}} dx,$$

and the sequence of positive numbers (μ_h) is chosen such that

$$\sum_{h=1}^{\infty} \mu_h^{\frac{1}{m}} < \infty.$$

Then we construct an SPDEs having ν_m as aninvariant measure.