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ÉVALUATIONS DE CERTAINES FONCTIONNELLES ASSOCIÉES À DES FONCTIONS ALÉATOIRES GAUSSIENNES

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Abstract: Let $X = \{X(\omega, t), \omega \in \Omega, t \in T\}$ be a random function on (Ω, a, P), let T be a finite set, and μ a probability on T. We assume that the components of X are P-integrable. We denote by $\mathcal{M}(\mu)$ the set of the random probabilities $m = \{m(\omega), \omega \in \Omega\}$ on T whose expectation is μ. We put

$$\phi(X, \mu) = \sup_{m \in \mathcal{M}(\mu)} E[\int_T X(\omega, t) m(\omega, dt)].$$

In this paper, we extend and study this quantity when T is in fact a Polish space (Section 1); then we show (Section 2) that if X is Gaussian and rather regular, then $\phi(X, \mu)$ is monotonic in terms of the metric defined by X (Theorem 2.1), finally (Section 3), we majorize (Theorem 3.1) or minorize (3.2) the function $\phi(X, \mu)$ in some cases.

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