ÉVALUATIONS DE CERTAINES FONCTIONNELLES ASSOCIÉES À DES FONCTIONS ALÉATOIRES GAUSSIENNES

X. Fernique

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

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

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.

2000 AMS Mathematics Subject Classification: Primary: -; Secondary: -;
Key words and phrases: -

The full text is available here