

Estimates for distributions of Hölder semi-norms of random processes from spaces $F_\psi(\Omega)$

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In the following we deal with estimates for distributions of Hölder semi-norms of sample functions of random processes from spaces $F_\psi(\Omega)$, defined on a compact metric space and on an infinite interval $[0, \infty)$, i.e. probabilities

$$P \left\{ \sup_{\substack{\text{substack} \\ 0 < \rho(t,s) \leq \varepsilon, s \in \mathbb{T}}} \frac{|X(t) - X(s)|}{f(\rho(t,s))} > x \right\}.$$

Such estimates and assumptions under which semi-norms of sample functions of random processes, defined on a compact space, satisfy the Hölder condition were obtained by Kozachenko and Zatul (2015). Similar results were provided for Gaussian processes, defined on a compact space, by Dudley (1973). Kozachenko (1985) generalized Dudley's results for random processes belonging to Orlicz spaces, see also Buldygin and Kozachenko (2000). Marcus and Rosen (2008) obtained L^p moduli of continuity for a wide class of continuous Gaussian processes. Kozachenko et al. (2011) studied the Lipschitz continuity of generalized sub-Gaussian processes and provided estimates for the distribution of Lipschitz norms of such processes. But all these problems were not considered yet for processes, defined on an infinite interval.

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