D. V. ZATULA [1]

Lipschitz conditions for random processes from Banach spaces $F_\psi(\Omega)$

[1] *National T. Shevchenko University of Kyiv, Ukraine*
E-mail: dm_zatula@mail.ru

$F_\psi(\Omega)$ space of random variables is a Banach space with norm

$$\|\xi\|_\psi = \sup_{u\geq 1} \frac{\left(\mathrm{E}|\xi|^u\right)^{1/u}}{\psi(u)},$$

where $\psi(u) > 0$ – some monotonically increasing function. Properties of random processes from $F_\psi(\Omega)$ spaces were investigated in [1].

Let (T, ρ) be some metric space. We consider conditions under which the sample paths of random processes $X = (X(t), t \in T)$ satisfying Lipschitz condition. In particular, we provide function f, the modulus of continuity, such that

$$\limsup_{\varepsilon \downarrow 0} \frac{\sup_{0<\rho(t,s)\leq\varepsilon} |X(t) - X(s)|}{f(\varepsilon)} \leq 1$$

and estimates for the probabilities

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

for random processes from $F_\psi(\Omega)$ spaces of random variables.

[1] Yu. V. Kozachenko, Yu. Yu. Mlavets, Banach spaces of random variables $F_\psi(\Omega)$, *Probability Theory and Mathematical Statistics* **86**, (2012), pp. 92-107.