Tursunov G. T.(Tashkent, Uzbekistan) — **The asymptotic behavior of the empirical characteristic process constructed by sample with random size.**

On the probability space (Ω, F, P) we consider a sequence of independent and identically distributed random variables $\{\xi_k, k \geq 1\}$ with continuous distribution function $F(x)$, $x \in R_1 = (-\infty, +\infty)$ and characteristic function $c(t) = \int_{-\infty}^{+\infty} \exp(itx)\, dF(x)$, $i = \sqrt{-1}$, also a sequence $\{N_n, n \geq 1\}$ of integer-valued, nonnegative random variables satisfies to condition:

(A): $P\left\{\left|\frac{N_n}{n} - 1\right| \geq \delta_n\right\} \leq \gamma_n$, where a sequences of numbers δ_n and γ_n such that $\delta_n \to 0$ and $\gamma_n \to 0$ at $n \to \infty$.

Form the empirical a characteristic procces $Y_n(t) = \sqrt{n}\,(c_n(t) - c(t))$, $-\infty < T_1 \leq t \leq T_2 < \infty$, where $c_n(t) = \frac{1}{n}\sum_{k=1}^{n} \exp(it\xi_k) = \int_{-\infty}^{+\infty} \exp(itx)\, dF_n(x)$ the empirical characteristic function and $F_n(x)$ empirical distribution function. We denote Gaussian procces $Z(t) = \int_{-\infty}^{+\infty} \exp(itx) dB(x)$, $t \in [T_1, T_2]$. Where $B(x)$, $x \in R_1$ the Brownian bridge with zero mean and covariance function $E(B(x)\, B(y)) = F(x)(1 - F(y))$, $x \leq y$. Conditions of convergence of a random procces $Y_{N_n}(t)$, $-\infty < T_1 \leq t \leq T_2 < \infty$ to the Gaussian procces studied and estimates of the rate of convergence of probability $P\left\{\sup_{T_1 \leq t \leq T_2} |Y_{N_n}(t) - Z_n(t)| \geq \varepsilon_n\right\}$ to zero obtained, where sequence Gaussian procceses $n \to \infty$, $\{Z_n(t), n \geq 1\}$ identically distributed with $Z(t)$ и $\{\varepsilon_n, n \geq 1\}$ and a sequence of numbers $\alpha_n \to 0$ such that $n \to \infty$.