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METHOD OF ANALYSIS OF LARGE ARRAYS OF DISCRETE EMPIRICAL DISTRIBUTIONS OF COUNTS WITH A SMALL SAMPLE NUMBER

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During the radiometry of emission fluxes by recording the sequence of counts $K(\Delta t)$ in time intervals Δt the procedure of forming the sequence of random vectors $(n_0...n_i...n_l)_j$ is performed, where n_i $(k_i = i)$ is a random number of equal values of k_i in one random sample of the size $n = n_0 + ...n_i + ...n_l$. With a small sample size $n \leq 10$, a large number of $M > 10^5$ and the number of different types of j vectors $Q > 10^4$ statistical analysis of their frequency characteristics is a difficult problem. A particular implementation of type j of the combination of values n_i occurs in a vector with a random frequency M_j, the binomial estimation of which is MP_j, where P_j is a polynomial probability of the vector appearance. To each type of vector j, the discrete functionality $ID(-)_j = (a_0n_0 + ... + a_ln_l)$ corresponds unambiguously, where $(a_0, ..., a_l)$ is a specified non-random vector $1 \leq a_0 \leq ... \leq a_l$ with integer components a_i.

Multimodal empirical distributions $M_j(ID_j)$ depending on the values of a_j make it possible to unite homogeneous vectors of the corresponding types into peaks without complicated testing of hypotheses about the type of distribution in small samples.

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