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On the pair correlations of neutral K, D, B and B_s mesons with close momenta produced in inclusive multiparticle processes

The phenomenological structure of inclusive cross-sections of the production of two neutral K mesons in hadron–hadron, hadron–nucleus and nucleus–nucleus collisions is investigated taking into account the strangeness conservation in strong and electromagnetic interactions. Relations describing the dependence of the correlations of two short-lived and two long-lived neutral kaons $K^0_S K^0_S$, $K^0_L K^0_L$ and the correlations of "mixed" pairs $K^0_S K^0_L$ at small relative momenta upon the space-time parameters of the generation region of K^0 and $\bar{K}^0$ mesons have been obtained. These relations involve the contributions of Bose-statistics and S-wave strong final-state interaction of two K^0 ($\bar{K}^0$)-mesons as well as of a K^0-meson with a $\bar{K}^0$-meson, and also the contribution of transitions $K^+K^- --> K^0\bar{K}^0$, and they depend upon the relative fractions of produced pairs K^0K^0, $\bar{K}^0\bar{K}^0$ and $K^0\bar{K}^0$.
It is shown that under the strangeness conservation the correlation functions of the pairs $K^0_S K^0_S$ and $K^0_L K^0_L$, produced in the same inclusive process, coincide, and the difference between the correlation functions of the pairs $K^0_S K^0_S$ and $K^0_S K^0_L$ is conditioned exclusively by the production of the pairs of non-identical neutral kaons $K^0\bar{K}^0$. Analogous correlations for the pairs of neutral heavy mesons D^0, B^0 and B^0_s, generated in multiple processes with the charm (beauty) conservation, are analyzed, and differences from the case of neutral K mesons are discussed .

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