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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 $K_S^0 K_S^0, K_L^0 K_L^0$ and the correlations of "mixed" pairs $K_S^0 K_L^0$ 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 $K^0 K^0$, $\overline{K}^0 \overline{K}^0$ and $K^0 \overline{K}^0$. It is shown that under the strangeness conservation the correlation functions of the pairs $K_S^0 K_S^0$ and $K_L^0 K_L^0$, produced in the same inclusive process, coincide, and the difference between the correlation functions of the pairs $K_S^0 K_S^0$ and $K_S^0 K_L^0$ is conditioned exclusively by the production of the pairs of non-identical neutral kaons $K^0 \overline{K}^0$. 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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