TYPES OF PARTICLE OSCILLATIONS AND THEIR REALIZATIONS IN K^0 AND n OSCILLATIONS

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Two particle vacuum transitions (oscillations) are studied in the general case. We found that:

1) a nondiagonal mass term characterizing oscillations is the width of two particle transitions into each other (this width can be computed by the standard method);

2) two types of oscillations take place: real and virtual.

Solution of the problem of origin of mixing angle in the theory of vacuum oscillations is given.

K^0-meson and neutrino oscillations must proceed via two stages. First, $K^0, \bar{K}^0$-eigenstates of strong interaction (or n_e, n_m, n_t-eigenstates of weak interactions) are created. Then, owing to the strangeness violating weak interaction (or the lepton number violating interactions), these meson states (or neutrino states) are converted into superpositions of K_1^0, K_2^0-eigenstates of the weak interaction violating strangeness (or n_1, n_2, n_3-eigenstates of the interaction violating lepton numbers). Further, K^0-meson or neutrino oscillations will occur in accordance with the standard scheme.

If $K^0, \bar{K}^0$ mesons (or n_2, n_2, n_3 neutrinos) were originally created then mixings (oscillations) would not take place since the strong interaction conserves strangeness and isospins (and the weak interaction conserves lepton numbers).