

ADVANTAGES OF APT IN QCD STUDY OF HADRONIC TAU DECAYS

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The experimental data on the tau lepton decay into hadrons obtained with a record accuracy for hadronic processes give a unique possibility for testing QCD at low energy scale. The theoretical analysis of the hadronic decays of a heavy lepton was performed Y.S. Tsai before the experimental discovery of the tau lepton in 1975 and since then this process is intensively studied. We present a comparative analysis of different forms of approximations, which are applied to the description of the hadronic decays of the tau lepton. Advantages and self-consistency of the method called analytic perturbation theory (APT) are demonstrated. It is shown that the use of the APT leads to the good description of inclusive functions associated with vector and axial-vector non-strange quark currents down to the lowest energy scale.