Determination of quark and gluon vacuum condensates from Ï„-lepton decay data

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Abstract

The values of the gluon and four-quark vacuum condensates are estimated using recent experimental data on the semileptonic τ-lepton decays τ→ντ+nπ, which determine the vector and axialvector hadronic spectral functions. An optimal estimate is achieved through a systematic combined use Finite Energy, Laplace and Gaussian transform QCD sum rules. As a byproduct, the values of the dimensiond=8 vacuum condensates in the vector and axial-vector channels are also estimated.

Keywords Experimental Data, Field Theory, Elementary Particle, Quantum Field Theory, Spectral Function