

Representation of the RG-invariant quantities in perturbative QCD through powers of the conformal anomaly

среда, 23 ноября 2022 г. 16:15 (45)

We consider the possibility of representing the perturbative series for renormalization group invariant quantities in QCD in the form of their decomposition in powers of the conformal anomaly $\beta(\alpha_s)/\alpha_s$ in the $\overline{\text{MS}}$ scheme. We remind that such expansion is possible for the Adler function of the process of e^+e^- annihilation into hadrons and the Bjorken polarized sum rule for the deep-inelastic electron-nucleon scattering, which are both related by the Crewther-Broadhurst-Kataev relation. In addition, we study the cases of the static quark-antiquark Coulomb-like potential, its relation with the quantity defined by the cusp anomalous dimension and the Bjorken unpolarized sum rule of neutrino-nucleon scattering. The arguments in favor of the validity of the considered representation are given.

Primary author(s) : Prof. KATAEV, Andrey (INR, Moscow)

Presenter(s) : Prof. KATAEV, Andrey (INR, Moscow)

Session Classification : Afternoon session 23/11/2022

Track Classification : QCD and related topics