

Pion quark structure in QCD

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We combine the constraints on the pion quark structure available from perturbative QCD, nonperturbative QCD (nonlocal QCD sum rules and light cone sum rules) with the analysis of current data on $F_{\pi\gamma\gamma^*}(Q^2)$, including recent high-precision lattice calculations of the second moment of the pion's distribution amplitude. We supplement these constraints with those extracted from the renormalon approach by means of the twist-four contributions to the pion distribution amplitude in order to further increase stability with respect to related theoretical uncertainties. We show which regions in the space of the first two non-trivial Gegenbauer coefficients a_2 and a_4 of all these constraints overlap, tagging this way the pion structure to the highest degree possible at present.

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