

Determination of α_s from static QCD potential with renormalon subtraction

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We determine the strong coupling constant α_s from the static QCD potential by matching a theoretical calculation with lattice QCD computation. We adopt a new theoretical framework where we subtract the renormalon uncertainties, which limit the accuracy of perturbation theory, based on OPE. This allows us to take a considerably wider fitting range than ordinary perturbation theory, which leads to a more reliable determination. We obtain $\alpha_s(M_Z)$ with 1.3 % accuracy, which is consistent with the current PDG value.

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