NAIVE NONABELIANIZATION AND RESUMMATION OF FERMION BUBBLE CHAINS

M. Beneke, V. M. Braun

We propose to extend the Brodsky–Lepage–Mackenzie scale-fixing prescription by resumming exactly any number of one-loop vacuum polarization insertions into one-loop diagrams. In this way, one makes maximal use of the information contained in one-loop perturbative corrections combined with the one-loop running of the effective coupling. The scale ambiguity at leading order is converted into an intrinsic uncertainty of perturbative approximations induced by IR renormalons. Practical implementation of this resummation requires only knowledge of one-loop radiative corrections with non-vanishing gluon mass. We find that higher order corrections to the pole mass and the top quark decay width are dominated by renormalons already in low orders and demonstrate the impact of eliminating the pole mass on the convergence of the perturbative series.

REFERENCE

Beneke M., Braun V.M. //Phys.Lett., 1995. **B348**. 513.

EFFECTIVE CHIRAL LAGRANGIAN FROM DUAL RESONANCE MODELS

M. V. Polyakov, V. V. Vereshagin

Parameters of the effective chiral lagrangian (EChL) of orders $O(p^4)$ and $O(p^6)$ are extracted from low–energy behaviour of dual resonance models for $\pi\pi$ and πK scattering amplitudes. Dual resonance models are considered to be good candidates for the resonance spectrum and for hadronic scattering amplitudes in the large N_c limit of QCD. We discuss dual resonance models in the presence of spontaneous and explicit chiral symmetry breaking. Obtained parameters of the EChL are used to estimate chiral corrections up to the sixth order to various low–energy characteristics of $\pi\pi$ and πK scattering amplitudes.

REFERENCE

Polyakov M.V., Vereshagin V.V. Preprint PNPI-TH-2068-1995.33p. Submitted to Nucl.Phys.B.