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Resummation of Ir Renormalons in a Single Meson Photoproduction

Shahin S. AGAEV

High Energy Physics Lab., Baku State University,
Z.Khalilov st. 23, 370148 Baku - AZERBAIJAN

Abstract: Single pseudoscalar and vector mesons hard semi-inclusive photoproduction $\gamma h \rightarrow MX$ via higher twist mechanism is calculated using the QCD running coupling constant method. It is proved that in the context of this method a higher twist contribution to the photoproduction cross section cannot be normalized in terms of the meson electromagnetic form factor. The structure of infrared renormalon singularities of the higher twist subprocess cross section and the resummed expression (the Borel sum) for it are found. Comparisons are made with earlier results, as well as with leading twist cross section. Phenomenological effects of studied contributions for π , K , ρ -meson photoproduction are discussed.

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phys@tubitak.gov.tr

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