پژوهشگاه دانـــش‌های بنـــیادی

Institute for Research in Fundamental Sciences

School of Particles and Accelerators

Fine structure of the massless perturbation theory series in QCD and the generalizations of the Crewther relation

By: Professor Andrei Kataev

The Institute for Nuclear Research of the Russian Academy of Sciences (INR RAS), Moscow

Abstract

The structure of the beta-expanded representations for the coefficients of the perturbative QCD series for the e^+e^-- annihilation Adler function and Bjorken polarized and Gross-Llewellyn Smith neutrino DIS sum rule is analysed. The product of the series for the Adler function and these Deep-inelastic scattering sum rules obeys the generalized Crewther relation, which reflects the manifestation pf the proportional to the RG Beta-function conformal symmetry breaking perturbative contribution into the amplitide of pi- gamma gamma decay / The relation of the beta-expanded represntations for these series to proper treatment of the renormalon free PT QCD variants pf the Brodsky-Lepage-Mackenzie scale fixing procedure is discussed. The relation to the perturbative quenced QCD and finite QED limits expressions, which are realized in the non-distingushed in the experimentally related conformal symmetry limit considerations is clarified.

Time: 11:00 AM, 2nd of October 2024; 11th of Mehr 1403

Meeting Place: Seminar Room, School of Particles and Accelerators, IPM

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