

A spectral representation for the baryon to meson and baryon to photon TDAs

The concept of generalized parton distributions (GPDs), non-diagonal matrix elements of quark-antiquark or gluon-gluon non local operators on the light cone, has recently been extended to baryon to meson and (and baryon to baryon) transition distribution amplitudes (TDAs), non diagonal matrix elements of three quark operators between two hadronic states of different baryon number (or between a baryon state and a photon).

These objects are useful for the description of exclusive processes characterized by a baryonic exchange such as backward deeply virtual Compton scattering backward electroproduction of mesons or proton-antiproton annihilation. Nucleon to meson TDAs are also considered to be a useful tool to quantify the pion cloud in the baryons.

In this talk we address the problem of construction of a spectral representation of baryon to meson (and baryon to photon) transition distribution amplitudes. We introduce the notion of quadruple distributions and generalize A. Radyushkin's factorized Ansatz for this issue.

This allows the modeling of baryon to meson and baryon to photon TDAs in the complete domain of their definition and quantitative rate estimates in various hard exclusive reactions.

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