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Physical Interpretation of Chiral Odd Generalized Parton Distributions from Deeply Virtual Meson Production

Exclusive π^o electroproduction from nucleons was suggested in as a method
for extracting from experiment the tensor charge, transversity and other quantities related to chiral odd combinations
of generalized parton distributions.
In this contribution we explain the details of the process: {\it i)} the connection between the helicity description and the cartesian basis; {\it ii)} the dependence on the momentum transfer squared, Q^2, and {\it iii)} the angular momentum, parity, and charge conjugation
constraints (J^{PC} quantum numbers).
We also address the question of the physical interpretation of the chiral-odd GPDs. This issue is at variance with the chiral-even sector where the four chiral even GPDs correspond to a clear physical picture each one being normalized to the nucleon form factors describing its electroweak properties.
In the chiral-odd sector, instead, only H_T yields the transversity structure function, $h_1(x)$ in the forward limit, whereas no model independent connection with known form factors or structure functions exists for the other GPDs.
While interesting connections to Transverse Momentum Distributions were established within a class of models,
in this contribution we discuss a different perspective whereby using Parity transformations, and assuming the validity of the quark-diquark model, we can establish relations between the chiral-even and chiral-odd quark-proton helicity amplitudes.

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