

Parametrization of the transverse momentum dependent light-front correlator for gluons.

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Abstract

We study the transverse-momentum dependent light-front correlator for gluons. At the operator level this is expressed as a matrix element containing nonlocal field strength operators and gauge links bridging the nonlocality. We parametrize the leading (twist two) gluon-gluon correlator in terms of transverse-momentum dependent distribution functions (TMDs) for unpolarized, vector and tensor polarized targets (the latter being relevant for spin-1 targets). For a tensor polarized target there are eleven functions among which two are time reversal odd. We discuss bounds on the functions which might become useful for future applications. The qualitative behavior of the correlator in the small- x limit is linked to the matrix element of a single closed Wilson loop operator, where explicit gluon fields are absent.

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