Polarized Deep Inelastic Diffractive ep Scattering: Operator Approach

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Polarized inclusive deep–inelastic diffractive scattering is dealt with in a quantum field theoretic approach. The process can be described in the general framework of non–forward scattering processes using the light–cone expansion in the generalized Bjorken region applying the generalized optical theorem. The diffractive structure functions $g_1^{D(3)}$ and $g_2^{D(3)}$ are calculated in the twist–2 approximation and are expressed by diffractive parton distributions, which are derived from pseudo-scalar two–variable operator expectation values. In this approximation the structure functions $g_2^{D(3)}$ is obtained from $g_1^{D(3)}$ by a Wandzura–Wilczek relation similar as for deep inelastic scattering. The evolution equations are given. We also comment on the higher twist contributions in the light–cone expansion.

References

[1] J. Blümlein and D. Robaschik, Phys. Rev. **D65** (2002) 096002.