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Helicity Distributions and OAM at Small x

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We derive and solve small- x evolution equations determining the small- x asymptotics of quark and gluon helicity PDFs and TMDs and orbital angular momentum (OAM) distributions. Our evolution equations resum powers of $\alpha_s \ln^2(1/x)$. At large N_c , solving our equations, we obtain the following small- x asymptotics for helicity PDFs and OAM:

$$\Delta\Sigma(x, Q^2) = -L_{q+\bar{q}}(x, Q^2) \sim \left(\frac{1}{x}\right)^{\frac{4}{\sqrt{3}}} \sqrt{\frac{\alpha_s N_c}{2\pi}},$$
$$\Delta G(x, Q^2) \sim L_G(x, Q^2) \sim \left(\frac{1}{x}\right)^{\frac{13}{4\sqrt{3}}} \sqrt{\frac{\alpha_s N_c}{2\pi}}.$$

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