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Phenomenology of single spin asymmetries in inclusive reactions involving photons and leptons

A phenomenological model which has had some success in explaining polarization phenomena and left-right asymmetry in inclusive proton-proton scattering is considered for reactions involving photons. In particular, the reactions (a) $\gamma + p \rightarrow H + X$; (b) $\gamma + p(\uparrow) \rightarrow \pi^\pm + X$ and (c) $p(\uparrow) + p \rightarrow \gamma + X$ are considered where γ = resolved photon and hyperon $H = \Lambda, \Sigma, \Xi$ etc. Predictions for hyperon polarization in (a) and the asymmetry (in (b) and (c)) provide further tests of this particular model. Feasibility of observing (b) at the accelerators the effect of the polarization of the sea in the proton in $p(\uparrow) + p \rightarrow \pi^\pm + X$ is briefly discussed. We also see the possibility of these effects in leptons (including neutrinos)

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