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Towards the transverse SSA for ep → hX at NLO and its connection to ep → gammaX

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We present a calculation of the single-spin asymmetry (SSA) for the single-inclusive production of hadrons in collisions of transversely polarized protons
and unpolarized electrons, ep↑ → hX. We compute this transverse spin observable
within the collinear twist-3 factorization approach in perturbative QCD to next-to-leading order (NLO) accuracy. Several production channels contribute at NLO and this talk will focus especially on the qg → g channel featuring quark-gluon-quark correlations inside the proton and the fragmentation of a gluon to the observed hadron. This channel is closely related to the similar process ep↑ → gammaX and we show how its transverse SSA can be obtained from the qg → g channel. Finally we show some numerical estimates for ep↑ → gammaX at a future Electron-Ion Collider (EIC)

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