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NLO corrections to heavy flavour distributions in polarized deep-inelastic scattering

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We present a first calculation of the heavy flavour contribution to the longitudinally polarized DIS structure function g_1^Q , differential in the transverse momentum or the rapidity of the observed heavy antiquark \bar{Q} . The results are obtained at next-to-leading order accuracy with a newly developed parton-level Monte Carlo generator that also allows one to study observables associated with the heavy quark pair such as its invariant mass distribution or their correlation in azimuthal angle. First phenomenological studies are presented in a kinematic regime relevant for a future Electron-Ion Collider with a particular emphasis on the sensitivity to the helicity gluon distribution. Finally, we also provide first NLO results for the full neutral-current sector of DIS, i.e., including contributions from Z -boson exchange.

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