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Towards collinear helicity parton distribution functions at next-to-next-to-leading order accuracy

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I present a preliminary determination of the collinear helicity parton distribution functions (PDFs) of the proton. The determination is performed from a set of inclusive and semi-inclusive deep-inelastic scattering data, it includes next-to-next-to-leading order QCD corrections to both processes for the first time, and it is carried out in a framework that combines a neural-network parametrisation of PDFs with a Monte Carlo representation of their uncertainties. I discuss the quality of the determination, in particular its dependence on higher order corrections and on various theoretical assumptions, such as positivity of cross sections and constraints from weak baryon decays. The generalisation power of the determination, specifically of the sea quark PDFs, is confronted to polarised collider Drell-Yan data.

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