Polarized DIS Structure Functions and Polarized PDFs from Neural Networks

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We present a parametrization of polarized Deep-Inelastic-Scattering (DIS) structure functions and polarized nucleon Parton Distribution Functions (PDFs) based on Neural Networks.

Our work follows the approach used by the NNPDF collaboration in the study of unpolarized DIS data using neural networks techniques.

The parametrization provides a bias-free determination of the probability measure in the space of structure functions, which retains information on experimental errors and correlations.

As an example we discuss the application of this method to the study of the structure function $g_1(x,Q^2)$.

The techniques employed in the analysis of structure functions data are discussed in detail, in view of the application to the determination of a set of polarized PDFs from a QCD global fit of polarized DIS data, based on the neural network approach.