New JAM global analysis of spin-dependent parton distributions

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TUM (JAM) COLLABORATION — We present the results of a new global next-to-leading order analysis of spin-dependent parton distribution functions from the most recent world data on polarized deep-inelastic scattering (DIS) and pp collisions, focusing in particular on the large-x and low-Q^2 regions. By directly fitting DIS polarization asymmetries, we eliminate biases introduced by using polarized structure function data extracted under nonuniform assumptions for the unpolarized structure functions. For analysis of the large-x data, we implement nuclear smearing corrections for deuterium and ^{3}He nuclei, and systematically include target mass and higher twist corrections to the g_1 and g_2 structure functions at low Q^2. We also explore the effects of Q^2 and W^2 cuts in the data sets, and the potential impact of future data on the behavior of the spin-dependent parton distributions at intermediate and large x.

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