Exploring Gluon Polarization in the Proton with STAR Jet Data and the NNPDF Polarized Parton Distributions[1] ANDREW CUDD, Cyclotron Institute, Texas A&M, STAR COLLABORATION — The NNPDF Polarized Parton Distribution Functions (PDF) are a PDF set made using a neural network technique rather than using traditional functional forms. The NNPDF polarized parton distribution includes one hundred different fits, or replicas, that are all considered equally probable. The NNPDF replicas were used to calculate the longitudinal double-spin asymmetry, A_{LL}, for inclusive jet production at $\sqrt{s} = 200$ GeV. The calculations were compared to STAR inclusive jet A_{LL} results from 2006 and 2009, and the χ^2 was determined for each replica. The χ^2 values were used in a reweighting procedure, which the NNPDF group developed, for the inclusion of new data into an existing PDF fit. After the reweighting, the polarization of the gluon is examined. The STAR data provide significant constraining power on the gluon polarization, compared to the unweighted NNPDF set.

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