

Nuclear Theory Seminar

Wednesday, April 21st, 1:15-1:45 PM

Gluon polarization measurements with STAR

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Abstract:

For polarized protons colliding at RHIC energies, the production of jets and hadrons is dominated by gg and qg scattering, making the double longitudinal spin asymmetry, A_{LL} , sensitive to gluon polarization in the nucleon. I will present STAR results of A_{LL} from inclusive and correlated probes for the RHIC 2006 run totaling 4.7 pb^{-1} of integrated luminosity with 60% average beam polarization at center-of-mass energy 200 GeV. I will also present recent high-precision results on jets and dijets from the 2009 run, which collected a much larger sample with 20 pb^{-1} and 58% average beam polarization, also at center-of-mass energy 200 GeV. The results are compared with theoretical calculations of A_{LL} based on various models of the gluon density in the nucleon. The STAR data place significant constraints on allowed theoretical models.