

# QCD and Nuclear effects on Drell-Yan Angular Coefficients in pp and p-Fe at 120 GeV proton beam energy

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The angular distributions of charged lepton pairs produced in hadron-hadron collisions via the Drell-Yan process provide unique insight into the production dynamics through spin correlation effects between the initial-state partons and the final-state leptons mediated by a spin-1 intermediate state, predominantly the  $\gamma$ -boson. We shall present the effect of perturbative QCD on angular coefficients  $\lambda$ ,  $\mu$  and  $\nu$  in Drell-Yan production for pp and p-Fe at 120 GeV proton beam energy, as explored by the SeaQuest experiment. We will use the DYNNLO and DYTURBO packages for a perturbative QCD calculation of the Drell-Yan process. Moreover, we shall consider the nucleon dynamics bound inside the nucleus using phenomenological nuclear parton distribution functions available at NNLO level as well as field theoretical approach to include Fermi motion, binding energy effects, and nucleon correlations. Besides these effects we will also incorporate beam parton energy loss in the nuclear target. This work was supported in part by US DOE grant DE-FG02-94ER40847.

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