

New Perspectives



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Spin Alignment of J/Ψ Production in 120 GeV p -Fe Interactions

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Various models based on quantum chromodynamics (QCD) have not yet been able to fully explain the production mechanism of heavy quark bound states. Most recent models such as the Color Evaporation Model (CEM) and Non-Relativistic QCD (NRQCD) successfully explain the higher transverse momentum spectra while none of them is able properly explain the spin alignment measured by various experiments. The J/Ψ is a charmonium bound state of charm and anti-charm quark with spin 1. SeaQuest, a fixed target experiment at Fermilab, has completed its data taking. The spectrometer of the experiment was designed to measure high energy muons, and it uses a 500 cm long Iron (Fe) block as beam dump. While interactions in the target served the primary goal of probing the flavor structure of the nucleon, a wealth of data from interaction with the iron beam dump provides ample opportunity to study charmonium production as well. In this talk, we report our progress on the measurement of the spin alignment of J/Ψ produced in 120 GeV p -Fe interactions at the SeaQuest experiment.

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