Abstract Submitted
for the APR09 Meeting of
The American Physical Society

Feasibility study for measuring J/Ψ polarization using early LHC data collected with the CMS detector ZHEN HU, ERIC JAMES, SIJIN QIAN, PEKING UNIVERSITY TEAM, FERMILAB LPC TEAM — We present a feasibility study for measuring the polarization of prompt J/Ψ mesons produced in proton-proton collisions at $\sqrt{s} = 10$ TeV as a function of the J/Ψ transverse momentum. The study is based on simulated samples of J/Ψ candidate events corresponding to 1 pb^{-1} of data expected to be collected by the CMS detector in early LHC running. We use Monte Carlo pseudo-experiments to study potential biases in the fit procedure used to extract the polarization parameter, α, and in the determination of our expected sensitivity. These measurements are expected to provide some insight into the current observed disagreement between the non-relativistic QCD theory and recent CDF J/Ψ polarization measurements made using data collected at the Tevatron collider.

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Date submitted: 07 Jan 2009 Electronic form version 1.4