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Particle multiplicity dependent Charmonia production in $p+p$ collisions by the PHENIX experiment

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The simple picture of a hard scattering per $p+p$ collision has been challenged by several measurements performed at LHC and RHIC, revealing a more complex dynamics of multiple parton interactions (MPI) which are essential to fully understanding particle production in hadronic collisions. Hard probe measurements at different particle multiplicity regimes in $p+p$ collisions provide a clean method to study (MPI). The PHENIX experiment has a unique capability to simultaneously measure particle production at forward (1.2$<\eta<$2.2), mid- ($|\eta|<0.25$) and backward (-2.2$<|\eta|<$-1.2) rapidities. This presentation will report on the results of J/ψ production in $p+p$ collisions at $\sqrt{s}$ =200 GeV when the particle multiplicity is measured at different rapidity regions. The gap between the J/ψ and the particle multiplicity measurement allows us to explore how the particles involved in the J/ψ production itself can affect the multiplicity dependent measurements.

Category

Experiment

Collaboration (if applicable)

PHENIX

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