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J/ψ production in jets in p+p collisions at $\sqrt{s} = 500$ GeV

The suppression of J/ψ production caused by the color-screening effect in heavy-ion collisions is considered as an evidence of the creation of quark-gluon plasma. To interpret the observed suppression in heavy-ion collisions, a good understanding of its production mechanism in p+p collisions is needed. However, the production of J/ψ in hadronic collisions remains not fully understood and requires further studies. Recently, J/ψ production in jets was proposed as a useful observable to help explore the J/ψ production mechanism, and to differentiate various J/ψ production models.

In this talk, measurement of the fraction of charged jet transverse momentum (p_T) carried by the J/ψ meson, $z(J/\psi) \equiv p_T(J/\psi)/p_T(jet)$, at mid-pseudorapidity ($|\eta| < 1$) with kinematic cuts of $p_T(J/\psi) > 5$ GeV/c and $p_T(jet) > 10$ GeV/c in p+p collisions at $\sqrt{s} = 500$ GeV by the STAR experiment will be presented. The comparison to model calculations and similar measurements carried out at the LHC will also be presented, and its physics implications will be discussed.

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