

1 Study of J/ψ production with jet activity in $p+p$ collisions
2 at $\sqrt{s} = 200$ GeV with the STAR experiment

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Abstract

5 The production mechanism of quarkonia in $p+p$ collisions involves both the per-
6 turbative and non-perturbative QCD processes and is a topic of active investigation.
7 Quarkonium production from Color Singlet Model and Color Octet Mechanism is
8 expected to result in different jet activities, i.e., the number of jets associated with
9 quarkonium creation, due to different numbers of emitted hard partons. Therefore,
10 the study of J/ψ production with respect to jet activity could potentially be used to
11 differentiate between the different production mechanisms.

12 In this talk, we will present the first measurement of the J/ψ production cross
13 section as a function of jet activity in $p+p$ collisions at $\sqrt{s} = 200$ GeV from the STAR
14 experiment. These results are compared to the PYTHIA calculations, and physics
15 implications will be discussed.