

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

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

11 In this talk, we will present the first measurement of the J/ψ production cross
12 section as a function of jet activity using the $p+p$ collision data at $\sqrt{s} = 200$ GeV
13 collected by the STAR experiment in 2015 at RHIC. These results are compared to
14 PYTHIA calculations, and physics implications will be discussed.