

1 Overview of recent quarkonium measurements
2 in p+p collisions with the STAR detector

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4 **Abstract**

5 Heavy quarkonia are important probes in searching for the quark-
6 gluon plasma (QGP) and studying its properties. The J/ψ suppression
7 and sequential melting of different Υ states in heavy-ion collisions
8 are key experimental observables to study the QGP. However, to interpret
9 the observed suppression in heavy-ion collisions, a good understanding
10 of the heavy quarkonium production mechanism in vacuum
11 is needed. Measurements in p+p collisions of quarkonium production
12 cross sections, its dependence on charged-particle multiplicity, polarization
13 as well as the newly proposed J/ψ production within jets will
14 contribute towards a comprehensive picture of the heavy quarkonium
15 production process.

16 In this talk, we will present an overview of the measurements of
17 the Υ and J/ψ production in p+p collisions performed by the STAR
18 experiment. The rapidity and p_T dependences of different Υ states
19 measured at $\sqrt{s} = 500$ GeV will be reported. Normalized quarkonium
20 yields as a function of normalized charged particle multiplicity
21 will also be presented and compared to different model calculations.
22 We will also present the first measurement of the fraction of
23 charged jet transverse momentum (p_T) carried by the J/ψ meson,
24 $z(J/\psi) = p_T(J/\psi)/p_T(jet)$, at $\sqrt{s} = 500$ GeV at RHIC. Comparisons
25 to model calculations and similar measurements carried out at
26 the LHC will be presented, and its physics implications will be discussed.
27 Finally, the measured J/ψ polarization at $\sqrt{s} = 200$ GeV will
28 be presented and compared to model calculations.