

Measurement of the event multiplicity dependence of J/ψ production at $\sqrt{s} = 510$ GeV with STAR at RHIC

A new high-statistics measurement is presented of inclusive J/ψ production versus event multiplicity in $\sqrt{s} = 510$ GeV p+p collisions with STAR at RHIC. Complementing existing measurements at both $\sqrt{s} = 200$ GeV from STAR and $\sqrt{s} = 7$ TeV from ALICE, a faster-than-linear rise is found for event multiplicity dependence. The dependence on collision energy is explored, and measurements are made separately for multiple intervals over a broad J/ψ transverse momentum range. Proposed explanatory mechanisms, including multi-parton interactions, string screening, and elevated gluon radiation are discussed, as well as the guidance this measurement and related probes provide to model calculations. The presented analysis utilizes the largest dielectron sample of quarkonia the STAR experiment has obtained from p+p collisions to date, thereby increasing precision and extending the reach into higher multiplicity.