Measurement of the event multiplicity dependence of J/ψ production at $\sqrt{s}$ = 500 with STAR at RHIC

A new high-statistics measurement is presented of inclusive J/ψ production versus event multiplicity in $\sqrt{s}$ = 500 GeV p+p collisions with STAR at RHIC. At mid rapidity, calorimeter triggered events are selected for candidate J/ψ detection in the dielectron channel. 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. This dependence on collision energy is explored, and measurements are made separately for several intervals over a broad J/ψ transverse momentum (p_T) range. Proposed explanatory mechanisms, including multi-parton interactions, string screening, and higher gluon radiation are discussed, as well as the guidance this measurement and related probes provide to model calculations.