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Υ production as a function of charged-particle multiplicity in pp collisions at $\sqrt{s} = 13$ TeV with ALICE

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In pp collisions at LHC energies, the production of heavy quarks proceeds from the hard scattering and then these quarks hadronise in either open heavy-flavor hadrons or quarkonia (e.g. J/ψ , $\psi(2S)$, Υ). The study of quarkonium production as a function of charged-particle multiplicity links soft and hard processes and allows to study their interplay. While a linear increase of quarkonium production as a function of charged-particle multiplicity can be reasonably well understood in the context of multi-parton interactions, the observation of deviations with respect to a linear increase requires a more detailed description of the collision and the inclusion of additional mechanisms such as collective effects, color reconnection or percolation.

In this contribution, we will present the latest ALICE measurements for J/ψ and Υ production as a function of charged-particle multiplicity in pp collisions at $\sqrt{s} = 13$ TeV. The self-normalised yield of J/ψ and Υ , defined as the ratio between the corresponding Υ yield in a given multiplicity interval to the multiplicity-integrated yield, are measured at forward rapidity ($2.5 < y < 4$) in the dimuon decay channel. The charged-particle multiplicity is measured in $|\eta| < 1$. We will also perform the first measurement of the double ratios of relative yield of $\Upsilon(2S)$ over $\Upsilon(1S)$ and J/ψ over $\Upsilon(1S)$ as a function of charged-particle multiplicity.

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