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Fraction of non-prompt J/ψ production vs multiplicity in pp collisions at $\sqrt{s}$ = 13 TeV

Measurements of the fraction of non-prompt J/ψ, which is originated from beauty hadron, as a function of charged particle pseudorapidity density $\mathrm{d}N_{ch}/\mathrm{d}\eta$ in pp collisions at $\sqrt{s}$ = 13 TeV with ALICE at the LHC are reported. The J/ψ meson yield is measured at midrapidity (|y| < 0.9) via dielectron channel, for events selected based on the charged-particle multiplicity at midrapidity ($|\eta|$ < 1) and at forward rapidity (−3.7 < η < −1.7 and 2.8 < η < 5.1); both observables are normalized to their corresponding averages in minimum bias events.
The separation between prompt and non-prompt J/ψ is performed down to p_{T} = 1 GeV/c, using the likelihood fit method through the templated MC shape describing non-prompt J/ψ decay length distribution.
The increase of the relative normalized inclusive J/ψ yield with relative normalized $\mathrm{d}N_{ch}/\mathrm{d}\eta$ is significantly stronger than linear and dependent on the transverse momentum. While, the fraction of non-prompt J/ψ don’t have a significant dependence vs mulitplicity. The data are compared to theoretical predictions in the inclusive case, which describe the observed trends well.

Topics

Heavy Flavour Physics

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