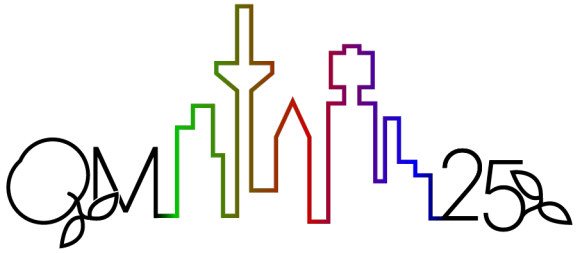

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Investigating the ψ(2S)/J/ψ production ratio in high-multiplicity pp collisions at $\sqrt{s}$ = 13.6 TeV with ALICE

Quarkonium production in hadronic collisions is a complex process, driven by hard-scale phenomena, such as the creation of quark-antiquark pairs during the initial hard scatterings. Studying the ψ(2S) to J/ψ ratio as a function of charged particle multiplicity provides valuable insights into the mechanisms governing quarkonium formation in high-energy collisions. Since ψ(2S) is an excited state of charmonium with a lower binding energy and was shown to have in Pb-Pb collisions a higher suppression rate than J/ψ, examining their relative production in high-multiplicity pp collisions is of particular interest. In this work, we present a comprehensive analysis of the ψ(2S)/J/ψ production ratio as a function of charged particle multiplicity in pp collisions at a center-of-mass energy of $\sqrt{s}$ = 13.6 TeV, using data collected by the ALICE detector at the Large Hadron Collider (LHC). By examining this ratio across different multiplicity classes, we aim to explore the potential influences of a particle-rich environment on quarkonium production. The experimental results will be compared with the available theoretical models.

Category

Experiment

Collaboration (if applicable)

ALICE

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