

Measurements of χ_c production in pPb collisions with CMS

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The nuclear modification of quarkonium state production is one of the smoking gun evidence of the deconfined QCD medium production in nuclear collisions. However, this modification does not solely originate from the medium dissociation but rather is a collection of effects from initial to final states. To better understand the interplay of these effects nowadays, the production relation of different quarkonium states is explored with different attributes of the quarkonia. Excited charmonium production in pPb collision can be thought of as a controlled environment to understand these effects further. In particular, the production of the $\chi_{c1,2}$ mesons can provide more information about the feed-down and binding energy dependence of the charmonia in the nuclear collision, as its mass lies in between the ground state and the $\psi(2S)$. In this talk, we present studies of the production of $\chi_{c1,2}$ in pPb collisions performed by CMS. We report the relative production of $\chi_{c1,2}$ with respect to J/ψ . The analysis measures the cross section ratio as a function of particle transverse momentum and rapidity, and event activity. The results are compared with other measurements in LHC with different rapidity ranges and pp collision data and model calculation to further extend our understanding of χ_c state production in nuclear collision.

Category

Experiment

Collaboration

CMS

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