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Charmed mesons production in high multiplicity pPb collisions

In this work we study the influence of proton and lead structures in charmed mesons production. We investigate the role of the spatial distribution of partons in the proton and in the nuclei by assuming that the proton has an Y shape. In this configuration, quarks are more at the surface, and gluons in the inner part of the proton. Going from peripheral to more central, and then to ultra-central collisions, the production enhancement is given by the high concentration of partons in the center of the nuclei and since $\sigma(g+g \to c+\bar{c}) \gg \sigma(q+\bar{q} \to c+\bar{c})$, almost all mesons are created from gluon interactions. These effects can explain the growth seen in the data and corroborates to stablish the Y picture of the proton, which can be extended to YY (butterfly) configuration to study heavy tetraquarks spectra.

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