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Measurement of $\psi(2S)$ production as a function of charged-particle multiplicity in pp collisions at $\sqrt{s} = 13$ TeV and p–Pb collisions at $\sqrt{s_{NN}} = 8.16$ TeV with ALICE at the LHC.

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Recent measurements reveal that J/ψ yields increase with increasing charged-particle multiplicity in pp and p–Pb collisions at the LHC. Different mechanisms have been proposed to explain this observation. One of them is the influence of multiple parton interactions (MPI) in the initial state of the collision. Measurements of the excited charmonia, as the $\psi(2S)$ state, state as a function of charged-particle multiplicity are important to disentangle the impact of possible final-state effects.

This poster presents the measurement of charmonium yields in pp collisions at $\sqrt{s} = 13$ TeV and p–Pb collisions at $\sqrt{s_{NN}} = 8.16$ TeV as a function of charged-particle multiplicity. J/ψ and $\psi(2S)$ are reconstructed in their dimuon decays within rapidity window $-4.0 < y_{lab} < -2.5$. Charmonia yields are normalised to their respective average values. The charged-particle multiplicity is measured at central rapidity and also normalised to its average value. The excited-to-ground state ratio is also shown. Results are compared with model calculations.

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