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ALICE Measurements in p-Pb collisions: Multiplicity, Centrality and Implications for Binary Scaling

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Measurements of particle production in proton-nucleus collisions provide a reference to disentangle final state effects, i.e. signatures of the formation of a deconfined hot medium, from initial state effects, already present in cold nuclear matter.

Since many initial state effects are expected to vary as a function of the number of collisions suffered by the incoming projectile, it is crucial to estimate event-by-event the centrality of the collision.

In p-Pb collisions, the low particle multiplicities and the large multiplicity fluctuations influence the way collisions are categorized into different centrality classes using a particle multiplicity distribution.

We present ALICE measurements of particle production in p-Pb collisions at $\sqrt{s_{NN}}=5.02$ TeV, including the pseudo-rapidity and transverse momentum dependence, we discuss the event classification in centrality classes and its implications for the measurements of nuclear modification factors.

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