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Measurement of neutral meson production as a function of multiplicity in pp collisions at $\sqrt{s} = 13$ TeV with ALICE

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The precise measurement of the neutral meson production in pp collisions can be used to constrain fragmentation functions and parton density functions needed by pQCD calculations. Additionally, those measurements serve as input for direct photon analyses.

Moreover, the dependence of the neutral meson cross section on the event charged-particle multiplicity could give further insight into possible final-state effects in high-multiplicity pp collisions, in which other measurements show surprising similarities with those in heavy-ion collisions.

The analysis combines results from several partially independent reconstruction techniques available in ALICE. The decay photons were either detected with the electromagnetic calorimeters, or via the central tracking system using e^+e^- pairs from conversions in the detector material.

The combination of these methods allows for a large p_T coverage, as well as small statistical and systematic uncertainties.

In this poster, the invariant cross sections of the π^0 and η meson in pp collisions at $\sqrt{s} = 13$ TeV, measured with ALICE, for different charged-particle multiplicity classes will be presented. The measurement covers $0.2 \leq p_T < 200$ GeV/c for the π^0 and $0.4 \leq p_T < 50$ GeV/c for the η meson. Furthermore, the results will be compared to predictions from event generators and pQCD calculations.

Experiment/Theory

ALICE

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