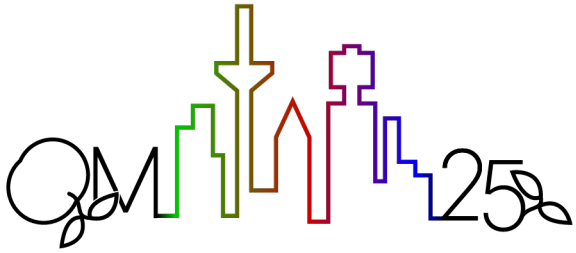

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Unraveling the Hadronic Phase with Resonances in pp Collisions at LHC Run 3 with ALICE

The study of hadronic resonances provides valuable information about the final state interactions and the system evolution in ultra-relativistic nuclear collisions. Due to their short lifespan, comparable with the duration of the hadronic phase, resonances can be affected by the competing re-scattering and regeneration mechanisms. In particular, their decay daughters interact elastically with other hadrons, altering their transverse momentum (p_T) distributions and affecting the measured resonance yields. Measurements of the ratio of yields of hadronic resonances to their ground state particles across various charged-particle multiplicities provide time information between chemical and kinetic freezeout. The ALICE experiment in the LHC Run 3 is best suited for resonance measurements because of its excellent tracking and PID capabilities over a broad momentum range.

In this contribution, we present the new ALICE results on resonance production from LHC Run 3 data collected in 2022 with the upgraded ALICE detector, making use of the higher statistics compared to previous data-taking periods. The results will be compared to similar measurements from data collected during LHC Run 2. The contribution focuses on p_T distributions of the hadronic resonances, their p_T-integrated yields, and the ratios of p_T-integrated resonance yields to those of long-lived particles. The experimental results will be compared with the available theoretical predictions, which may offer new perspectives on the underlying dynamics in the hadronic phase.

Category

Experiment

Collaboration (if applicable)

ALICE Collaboration

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