

Quark Matter 2019 - the XXVIIIth International Conference on Ultra-relativistic Nucleus-Nucleus Collisions



Contribution ID: 150

Type: Poster Presentation

Hadronic resonance production in asymmetric collisions with ALICE at the LHC

Monday, 4 November 2019 17:40 (20 minutes)

Hadronic resonances are interesting probes of the hot and dense matter created in heavy-ion collisions. Due to their short lifetimes, resonances are useful tools to understand the particle production mechanisms and the properties of the hadronic phase. Resonance yields are expected to be modified due to the interaction of their decay daughters within the hadronic medium via the re-scattering and re-generation processes.

The study of resonance production in p-Pb collisions fills the gap between pp and heavy-ion (Pb-Pb, Xe-Xe) collisions and also helps us

to understand the initial state effects due to cold nuclear matter. In asymmetric collisions, the produced particle yields are different at the forward and backward rapidities. The rapidity asymmetry (Y_{Asym}) studies are sensitive to nuclear modification effects, like shadowing, the Cronin enhancement, multiple scattering and energy loss.

We will report on the measurement of the production of K^{*0} and ϕ resonances in p-Pb collisions at $\sqrt{s_{NN}} = 8.16$ TeV. Results include transverse momentum spectra, mean transverse momenta, yields and particle ratios as a function of charged particle multiplicity in the rapidity range ($-0.5 < y_{\text{CM}} < 0$). The parton energy loss is also studied by measuring the nuclear modification factors of K^{*0} and ϕ with other available results in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ and 8.16 TeV. In addition, the first measurements of the rapidity dependence of K^{*0} and ϕ production at $\sqrt{s_{NN}} = 5.02$ will be presented. These results will also be compared with different model predictions.

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Session Classification: Poster Session

Track Classification: Small systems