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Understanding the rescattering effect on Λ(1520) resonance production in different systems and collision energies with ALICE at LHC

Hadronic resonances are effective tools for studying the hadronic phase in ultrarelativistic heavy-ion collisions. In fact, their lifetime is comparable to that of the hadronic phase, and resonances are sensitive to effects such as rescattering and regeneration processes, which affect the resonance yields and shape of the transverse momentum spectra. These processes can be studied considering the yield ratio of resonance to the corresponding long-lived particle as a function of the charged-particle multiplicity. A significant suppression is observed for $\mathrm{K}^{*0}/\mathrm{K}$ with increasing multiplicity when going from pp to central Pb–Pb collisions. On the contrary, such a suppression is not observed for the ϕ/K ratio. The $\Lambda(1520)$ resonance is particularly interesting due to its lifetime of about 13 fm/c, which is in between the lifetimes of the K^{*0}(˜4 fm/c) and ϕ(˜ 46 fm/c) resonances, and thus provides more insight into the properties of the hadronic phase.

In this contribution, the recent results on $\Lambda(1520)$ resonance production and the effect of rescattering on this resonance production in pp, p–Pb and Pb–Pb systems in different collision energies with ALICE are presented.

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