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Measurement of the production of hypertriton with ALICE

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The production of hypertriton has been proposed as an effective method to study the nucleosynthesis mechanism in high-energy hadronic collisions. Within the coalescence picture, the yield of nulcei are sensitive to the interplay between the source size and the spatial distribution of their internal wave function, whereas in the statistical hadronization framework nuclear structure plays little role in the production yield. The hypertriton is found to be a loosely bound state with a size around 10 fm due to the small Λ separation energy about one hundred keV, making it an ideal probe for distinguishing between different nucleosynthesis models. Furthermore, measurements of the branching ratios for its various decay channels can provide insights into the ΛN interaction.

In this contribution, the recent ALICE measurements of hypertriton production in various collision systems and through different decay channels will be presented. In addition, the application of a new method called "strangeness tracking" developed with the upgraded ALICE Inner Tracking System (ITS2) on the measurement of hypertriton will also be shown.

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