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Type: **Experimental talk**

Studying hypertriton production, lifetime, and binding in different collision systems with ALICE

Friday, May 21, 2021 9:50 AM (20 minutes)

The ${}^3_{\Lambda}\text{H}$ is a bound state of proton (p), neutron (n) and Λ . Studying its characteristics provides insights about the strong interaction between the Λ and ordinary nucleons. In particular, the ${}^3_{\Lambda}\text{H}$ is an extremely loosely bound object, with a large wave function. As a consequence, the measured (anti-) ${}^3_{\Lambda}\text{H}$ production yields in pp and p-Pb collisions are extremely sensitive to nucleosynthesis models. Thanks to the very large set of pp, p-Pb and Pb-Pb collisions collected during Run 2 of the LHC, the ALICE collaboration has performed systematic studies on the ${}^3_{\Lambda}\text{H}$ lifetime, binding energy and production across different collision systems. The new ALICE results on hypertriton properties have a precision which is comparable with the current world average and they can be used to constrain the state-of-the-art calculations which describe the ${}^3_{\Lambda}\text{H}$ internal structure. The precision of the presented measurements allows for tighter constraints to available theoretical models. In particular, some configurations of the Statistical Hadronisation and Coalescence models can be excluded.

Collaboration

ALICE

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Session Classification: Resonances and Hypernuclei (II)

Track Classification: Production of strange/heavy-flavor hadron resonances and hypernuclei