

Light (anti)(hyper)nuclei production in Pb-Pb collisions measured with ALICE at the LHC

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Thanks to its excellent particle identification capability, the ALICE detector allows for the identification of deuterons, ${}^3\text{He}$ and ${}^4\text{He}$ and their corresponding antinuclei. This is achieved via the measurement of their specific energy loss in the Time Projection Chamber and of their velocity by the Time-Of-Flight detector. Moreover, thanks to the Inner Tracking System ability to separate primary from secondary vertices, it is possible to identify (anti)hypertritons (${}^3\text{H}$) exploiting their mesonic weak decay (${}^3\text{H} \rightarrow {}^3\text{He} + \pi^-$) and to search for a hypothetical bound state of a Λ with a neutron decaying into a deuteron and a pion. Results on the production of light nuclei and anti-nuclei in Pb-Pb and lighter collision systems (pp and p-Pb) will be presented. Hypernuclei production rates in Pb-Pb will also be shown, together with a measurement of the hypertriton lifetime and upper limits estimated on the production of lighter exotica candidates. The experimental results will be compared with the predictions of both thermal (statistical) and baryon coalescence models.

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