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Constraining (anti)nuclei measurements relevant for astrophysics with ALICE

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Antinuclei can be produced in space either by collisions of high-energy cosmic rays with the interstellar medium or from the annihilation of dark matter particles stemming into standard model particles. High-energy hadronic collisions at accelerators create a suitable environment for producing light (anti)nuclei. Hence, studying the production of antinuclei in pp collisions at the LHC can provide crucial insights into the production mechanisms of nuclear states in our Universe. Recent measurements of the production of antinuclei as a function of rapidity in pp collisions at $\sqrt{s} = 13$ TeV have been carried out with ALICE to allow for the extrapolation of the nuclear production models at forward rapidity, region of interest for astrophysics. Recent results on the cross-section of nuclei-antinuclei annihilation will also be discussed in this contribution. Such information is essential to study the different sources of antinuclei in our Universe and to interpret any future measurement of antinuclei in space.

Category

Experiment

Collaboration (if applicable)

ALICE

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