Contribution ID: **68** Type: **Contributed**

Constraining the light (anti)nuclei production in and out of jets in small systems with ALICE

Wednesday, 8 November 2023 12:25 (15 minutes)

The production mechanism of light (anti)nuclei in hadronic collisions, despite the several experimental results from low collision energies at the AGS and GSI to high energies at RHIC and at the LHC, is still mysterious and under intense debate in the scientific community. The experimental measurements can be described by two competing phenomenological models, the statistical hadronization model and the baryon coalescence. In the latter, the nuclei are formed if, at the kinetic freeze out, the constituent nucleons are close in the phase space and the sum of their spins is compatible with that of the bound system. The advanced implementation of the coalescence model uses the Wigner formalism and femtoscopy measurements to constrain the nucleon emitting source size. A testing ground for the coalescence model is the study of the light (anti)nuclei production in small systems in and out of jets, that are collimated sprays of strongly correlated particles. In fact, due to the close vicinity of nucleons inside the jet cone, the antinuclei formation probability is expected to be enhanced with respect to the production probability in the underlying event.

In this contribution, the results on the coalescence parameter for (anti)deuterons in and out of jets in pp an p-Pb collisions will be presented. These measurements are compared with the available prediction from the coalescence model and a reaction-based production mechanism. In addition, the prospects for light (anti)nuclei measurements in jets and underlying event during the Run 3 will be discussed.

Primary author: RASÀ, Marika (Istituto Nazionale di Fisica Nucleare)

Presenter: RASÀ, Marika (Istituto Nazionale di Fisica Nucleare)

Session Classification: Day 3 - Morning