17th International Conference on Strangeness in Quark Matter
Universiteit Utrecht
10-15 July 2017
Utrecht, the Netherlands
Utrecht 2017

Contribution ID: **88** Type: **oral presentation**

Production of (anti-)(hyper-)nuclei production at LHC energies with ALICE

Friday 14 July 2017 17:25 (20 minutes)

The ALICE experiment has measured a variety of (anti-)(hyper-) nuclei produced in Pb-Pb collisions at $\sqrt{s_{\rm NN}}$ = 5.02 TeV and at 2.76 TeV. In addition, a large sample of high quality data was recorded in pp collisions at $\sqrt{s}$ = 7 TeV and 13 TeV and in p-Pb collisions at $\sqrt{s_{\rm NN}}$ = 5 TeV. These data are used to study the production of a variety of (anti-)(hyper-)nuclei produced in the collisions, namely (anti-)deuteron, (anti-)helium-3, (anti-)alpha and (anti-)hypertriton. The identification of these (anti-)(hyper-)nuclei is based on the energy loss measurement in the Time Projection Chamber and the velocity measurement in the Time-Of-Flight detector. In addition, the Inner Tracking System is used to distinguish secondary vertices originating from weak decays from the primary vertex. New results on deuteron production as a function of multiplicity in pp, p-Pb and Pb-Pb collisions will be presented, as well as the measurement of helium-3 in p-Pb and Pb-Pb collisions. Special emphasis will be put on new results of the hypertriton in its 2- and 3-body decay modes. Additionally, the high energy deposit of Z=2 particles in the Transition Radiation Detector has been exploited to collect a hardware-triggered data sample in the high-interaction rate p-Pb collisions at $\sqrt{s_{\rm NN}}$ = 8.16 TeV. First findings from this (anti-)nuclei enriched sample will be shown. The large variety of measurements at different energies and system sizes allows to constrain the models of the production mechanisms of light flavour baryon clusters, in particular those based on coalescence and the statistical hadronisation approaches.

List of tracks

Freeze-out, hadronisation and statistical models

Primary author: ALICE COLLABORATION

Presenter: PUCCIO, Maximiliano (Universita e INFN Torino (IT))

Session Classification: Parallel Freeze-out

Track Classification: Freeze-out, hadronisation and statistical models