Contribution ID: **68** Type: **Talk**

Measurement of the production of (anti)(hyper)nuclei with ALICE

Tuesday 14 June 2022 09:20 (20 minutes)

In recent years, ALICE has extensively studied the production of light (anti)(hyper)nuclei in different collision systems and center-of-mass energies. The production mechanism of light (hyper)nuclei is still under debate in the scientific community. Two classes of models are used to describe nuclear production: the statistical hadronisation model (SHM) and the coalescence model. In heavy-ion collisions, both models describe well the production yields of light nuclei and their ratios to the yields of hadrons, making it difficult to distinguish between the two. On the contrary, collision systems such as pp and p–Pb collisions are ideal to study the (hyper)nuclei production mechanism. In particular, in high multiplicity pp collisions, by combining the measurements of the production of (anti)nuclei and femtoscopic measurements, the coalescence parameters are compared with parameter-free coalescence predictions. In addition, by comparing the production of in-jet and out-of-jet (anti)deuterons, it is possible to observe an increase of the (anti)deuteron production probability in the jet as compared to that out of the jet. Additional information can be extracted from the study of very large and extremely loosely bound objects such as $^3_\Lambda$H. This particle has a large wavefunction, hence its production yield in pp and p–Pb collisions is extremely sensitive to the nucleosynthesis models. With the precision of the presented production measurements, some configurations of the SHM and coalescence models can be excluded leading to tighter constraints to available theoretical ones.

Present via

Offline

Primary author: PINTO, Chiara (Technische Universitaet Muenchen (DE))

Presenter: PINTO, Chiara (Technische Universitaet Muenchen (DE))

Session Classification: PA-Resonances and Hyper-nuclei

Track Classification: Resonances and Hyper-nuclei