

## Accessing the coupled-channels dynamics using femtoscopic correlations with ALICE at LHC

Systems such as  $K^- p$  and baryon-antibaryon ( $B\bar{B}$ ) are both characterized by the presence of strong inelastic channels at the production threshold, which can affect the properties and the formation of bound states and resonances.

In the  $\bar{K}N$  system, the  $\Lambda(1405)$  arises from the interplay between the  $\bar{K}N$  and the coupled  $\Sigma\pi$  channel. Experimental constraints on the different  $\bar{K}N$  coupled-channels are needed to provide a full description of the nature and properties of the  $\Lambda(1405)$ . Similarly, baryon-antibaryon systems are characterised by the dominant contribution of several mesonic channels related to the presence of annihilation processes acting below 1 fm. The possible existence of baryon-antibaryon bound states is still under debate because of the limited amount of data available for the  $p - \bar{p}$  system, and either scarce or absent experimental data for  $B\bar{B}$  systems containing strangeness.

The femtoscopy technique measures the correlation of particle pairs at low relative momentum. This method has been applied in small colliding systems, such as pp and p-Pb collisions at ALICE, and provided high-precision data on several baryon-baryon and meson-baryon pairs, showing a great sensitivity to the underlying strong potential and to the introduction of the different coupled-channels.

In this talk, we will present femtoscopic correlations measured by ALICE in pp collisions at  $\sqrt{s} = 13$  TeV, separately for data samples obtained with minimum-bias and high-multiplicity triggers, and in peripheral and ultra-peripheral p-Pb and Pb-Pb collisions at  $\sqrt{s} = 5.02$  TeV.

In particular, we will show results on the  $K^- p$  correlation function which for the first time provide experimental evidence of the opening of the coupled isospin breaking channel  $\bar{K}^0 - n$  and on the  $\Sigma\pi$  channel contributions. Finally, results from baryon-antibaryon pairs ( $p\bar{p}$ ,  $p-$  and  $-$ ) will be shown for the first time. The effect of annihilation channels on the correlation function and a quantitative determination of the inelastic contributions in the three different pairs will be discussed.

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