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# Investigation of the three-body interactions of hadrons in pp collisions with ALICE

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On the endeavour to explore the strong interaction among hadrons, the ALICE Collaboration has extended the experimental measurements beyond those of two particles, studying three-body interactions. These measurements provide unique information on many aspects of strongly-coupled systems, like exotic bound states and the genuine three-body interactions. The latter constitute an important ingredient in the calculation of the equation of state of neutron stars.

The results presented in this talk are obtained using high-multiplicity pp collisions at $\sqrt{s}$ = 13 TeV recorded by ALICE at the LHC. The first measurement of the p-p-p and p-p-$\Lambda$ correlations will be discussed. The genuine three-body effects in both triplets are obtained by subtracting the independently determined two-particle correlations from the measured three-particle correlation functions, by utilising the formalism of the three-particle cumulants. In both systems, a non-zero cumulant is observed, giving a hint to the existence of genuine three-body effects.

The same approach is used to measure p-p-$K^+$ and p-p-$K^-$ correlations. Both measured three-particle correlation functions can be explained assuming two-body interactions only. In particular, the measured zero p-p-$K^-$ cumulant indicates negligible three-body effects in such system suggesting that the formation of the exotic kaonic bound states can not be driven by three-body forces.

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