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Constraining the equation of state of neutron stars with femtoscopy measurements by ALICE

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In the quest of understanding the nature of neutron stars, the study of the nuclear equation of state (EoS) plays a pivotal role. For constraining the latter, a comprehensive knowledge of the strong interaction among hadrons is crucial. However, probing these interactions in scattering experiments is challenging for strange baryons due to the unstable nature of hyperon beams and thus the available experimental data is scarce. Indeed, due to their possible presence in neutron stars, hyperons can impact the EoS and therefore it is required to understand how they interact with other hadrons.
In recent years, the study of interactions between hadrons has been greatly extended with ALICE at the LHC by utilizing the femtoscopy technique. With this, it became feasible to probe the interactions of unstable hadrons in vacuum at short distances (of a few femtometers) and down to zero relative momenta. In this talk, recent results from the ALICE Collaboration for two-body interactions between hadrons involving strangeness in pp collisions at $\sqrt{s} = 13$ TeV are presented. A plethora of results relevant for the study of neutron stars and their EoS are shown, including pΛ and pΞ interactions.

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