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Insights into molecular states and novel constraints for strange meson-baryon interactions with correlations at LHC

Thursday, October 24, 2024 2:00 PM (30 minutes)

In the last years the correlation measurements at LHC, particularly performed in small colliding systems such as proton-proton collisions, proved to be a powerful complementary experimental tool to access the strong interaction in hadronic systems with strange and charm content. The QCD dynamics driving the underlying interaction in these sectors is characterized by a rich presence of coupled-channels which, depending on the coupling strengths, can give rise to several dynamically generated states. The nature and inner composition of such states strongly depends on the interplay between the different coupled-channels and experimental constraints on their properties are typically obtained from dedicated mass invariant studies widely performed at LHC and as well at electron-positron colliders. In this talk we will discuss how femtoscopy can contribute to the search and understanding of these molecular states. We will present novel constraints on the $S = -1$ meson-baryon interaction with the first measurements of $\Xi^- K^+$ correlations and we will conclude with new insights into the $\Xi(1620)$ and $\Xi(1690)$ states obtained from recently measured ΛK^- and $\Xi^- \pi^+$ correlations.

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