The 22nd International Conference on
Strangeness in Quark Matter
22-27 March, 2026, Los Angeles, CA

Contribution ID: **56** Type: **Oral Presentation**

Probing strong interactions in charm hadron-–light particle systems with femtoscopy with ALICE

Tuesday, 24 March 2026 10:55 (20 minutes)

Studies of strong interactions between hadrons provide a unique opportunity to test Quantum Chromodynamics calculations at nucleon-scale distances. The femtoscopy technique, based on measuring correlations of hadron pairs in momentum space, has proven to be a powerful tool to study interactions involving short-lived particles. While strong interactions among light and strange hadrons have been extensively investigated, corresponding studies for charm hadrons remain scarce. Such measurements can provide insights into the possible formation of exotic charm states or, in the baryon sector, nuclei containing charm quarks.

In this contribution, we present femtoscopic measurements of the strong interaction between charm and light-flavor hadrons. The first-ever measurements of correlation functions of protons with Λ_c^+ baryons and D^+ mesons in pp collisions at $\sqrt{s} = 13.6$ TeV, using the large LHC Run 3 dataset, are presented. Moreover, a new measurement of the proton–D^- meson correlation function obtained with pp collisions collected during LHC Run 3, which significantly improves the precision of the previous ALICE result based on Run 2 data, is discussed. These measurements open a new avenue for exploring charm–hadron interactions and their role in the formation of charm-baryon bound states.

Authors: COLLABORATION, ALICE; LIU, Yunfan (Central China Normal University)

Presenter: LIU, Yunfan (Central China Normal University)

Session Classification: Parallel VI: Correlations