Contribution ID: **100** Type: **Contributed talk**

First measurement of the ρ^0–p correlation function with ALICE

Monday, 8 July 2024 17:10 (20 minutes)

Experimental data on the interaction between vector mesons and nucleons are a crucial input for understanding the pattern of in-medium chiral symmetry restoration (CSR) and dynamically generated excited N(Δ) states. However, accessing these interactions is hampered by the short-lived nature of the vector mesons, making traditional scattering experiments unfeasible. In recent years the ALICE Collaboration employed femtoscopy to measure similar challenging systems like the p-Ω and ϕ-p. Leveraging the excellent PID capabilities of the ALICE experiment, coupled with the copious production of ρ^0p pairs at the LHC in small colliding systems, ALICE presents the first-ever measurement of the momentum correlation function between ρ^0 and p. This measurement represents an unprecedented opportunity to study the nature of the excited N(Δ) in particular N(1700) and N(1900), possibly unveiling if these states are molecular in nature as well as shedding light on possible signatures of CSR at LHC energies.

session

E. Hadron and Nuclear Interactions

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Session Classification: E. Hadron and Nuclear Interactions