

# Investigation of the $\rho^0$ -p final-state interaction with ALICE

*Friday 19 July 2024 17:00 (15 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 the dynamically generated excited  $N(\Delta)$  states. However, accessing these interactions is hampered by the short-lived nature of vector mesons, making conventional scattering experiments unfeasible. Leveraging the excellent PID capabilities of the ALICE experiment, coupled with the copious production of  $\rho^0$ p pairs at the LHC in small colliding systems, ALICE presents the first-ever measurement of the momentum correlation function between  $\rho^0$  and p. This measurement provides an unprecedented opportunity to study the nature of the excited  $N(\Delta)$ , in particular  $N(1700)$  and  $N(1900)$ , and possibly find out whether these states are molecular in nature, as well as shed light on possible signatures of CSR at LHC energies.

## Alternate track

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Yes

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