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Azimuthal correlations of D mesons with charged particles with the ALICE experiment at the LHC

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The ALICE experiment at the LHC at CERN investigates the fundamental nature of the strong interaction in collisions of protons or heavy-ions. In these high-energy collisions, heavy quarks are created in the early stages of the reaction and their numbers are conserved during the evolution of the system created in the collision. Understanding their production features in pp collisions is relevant in the frame of QCD studies, and they also represent an ideal probe of the strongly interacting hot and dense medium produced in heavy-ion collisions. In particular, the comparison of angular correlations between charmed mesons and charged hadrons produced in pp and p–Pb collisions can help to understand the production and fragmentation mechanisms of charm quarks.

In this talk we will present D-h correlation results from pp collisions at 5.02 and 13 TeV as well as p–Pb collisions at 5.02 TeV. We will also show detailed comparisons between data and several Monte Carlo simulations, which can give insight into the flavour-dependence of the hard production and radiation of partons, as well as fragmentation processes, and thus help in the interpretation of the charm-quark production and fragmentation.

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