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First study of azimuthal correlations of electron-muon pairs from heavy-flavor decays in proton-proton collisions with ALICE

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In high-energy hadronic collisions, heavy flavors are a sensitive tool for studying the physics of strong interactions. In particular, heavy-flavor measurements in proton-proton (pp) collisions are most suitable to test QCD calculations and serve as baseline for studies in heavy-ion collisions. One measurement particularly sensitive to the production mechanism of heavy quarks is the azimuthal correlation distribution of lepton pairs generated from heavy-flavor hadron decays. More specifically, heavy-flavor quark pairs can be produced by leading-order (LO) processes, characterized by back-to-back azimuthal correlation of the two quarks, or next-to-leading-order (NLO) processes, with a different correlation pattern. The relative contribution of LO and NLO processes can be investigated from the azimuthal correlation distribution of the final-state heavy-flavor particles, and it is possible to set constraints to theoretical models describing this observable by comparing their predictions to the measurements. In this study, we use electron-muon pairs, which allow us to perform clean measurements that suppress e.m. processes conserving the lepton number, as Drell-Yan process and resonance decays. In this poster, we report the current status of the analysis of the measurements of azimuthal correlations of electron-muon pairs from heavy-flavor hadron decays in pp collisions at $\sqrt{s}$=13.6 TeV

Collaboration

ALICE

Category

Experiment

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