

Measurement of the Λ_c^+ fragmentation function in pp collisions at $\sqrt{s} = 13$ TeV with the ALICE experiment.

Charm quark production occurs via hard scattering processes in relativistic hadron-hadron collisions and is well described by perturbative QCD down to low transverse momenta. These highly virtual quarks subsequently fragment and hadronise. Measurements of charm baryon-to-meson ratio show significant modifications in pp collisions compared to e^+e^- [1], prompting further studies into the role of hadronisation mechanisms.

The initial kinematics of the scattered charm quarks could be reconstructed by means of studies of the final state hadrons clustered into jets. This provides us with a new tool to study hadronisation effects. We report the first measurement of the fragmentation function of Λ_c^+ -tagged jets at the LHC, obtained in pp collisions at $\sqrt{s} = 13$ TeV with the ALICE experiment. Jets are here tagged by the presence of Λ_c^+ baryon amongst their constituents and are reconstructed using the anti- k_t algorithm [2] with a resolution parameter of $R=0.4$. The results are fully corrected to particle level and are compared to a variety of theoretical models, which will be presented together with future prospects for heavy flavour jet studies in upcoming LHC runs.

[1] S.Acharya, et al., Λ_c^+ Production in pp Collisions at $\sqrt{s} = 7$ TeV and in p-Pb Collisions at $\sqrt{s_{NN}} = 5.02$ TeV. High Energ. Phys. 2018, 108 (2018)

[2] M.Cacciari, G.P.Salam, G.Soyez, The Anti- k_t jet Clustering Algorithm, J. High Energ. Phys. 2008, 04(2008): 063–063.

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