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Reconstruction of Bottom Jets in Proton-Proton Collisions at $\sqrt{s} = 13$ TeV with ALICE

When partons traverse the Quark-Gluon Plasma (QGP), they lose energy via collisional and radiative processes. This manifests in a suppression of the measured jet yield and a modification of the jet fragmentation pattern in heavy-ion collisions relative to minimum-bias proton-proton collisions, for which no QGP is expected to form. The amount of energy that is lost is expected to depend on the respective parton flavour and mass. Thus, a detailed understanding not only of the gluon and light-flavour but also of the charm and bottom-jet production is needed for the characterisation of the QGP via parton energy loss.

The long lifetime of B hadrons ($c\tau \sim 500 \mu\text{m}$) manifests in a comparably large separation of their decay products from the primary vertex. If a jet has been initiated by a bottom quark, then constituents originating from the corresponding B hadron decay exhibit the same behaviour which can be utilised for the identification of bottom jets. In this contribution, first results for a bottom jet spectrum in proton-proton collisions at $\sqrt{s} = 13$ TeV obtained via a selection based on track transverse impact parameter distributions will be discussed.

Collaboration (if applicable)

ALICE

Track

Heavy Flavor and Quarkonia

Contribution type

Poster

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Track Classification: Heavy Flavor and Quarkonia